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ANTHROPOLOGICAL INSTITUTE
OF
GREAT BRITAIN AND IRELAND.

NOVEMBER 10TH, 1874.

Professor BUSK, F.R.S., *President, in the Chair.*

The MINUTES of the last meeting were read and confirmed.

The following LIST of PRESENTS received was read, and the thanks of the meeting were voted to the donors.

FOR THE LIBRARY.

From the SOCIETY.—The Journal of the Royal Geographical Society. Vol. XLIII. Proceedings, ditto, Vol. XVIII. Nos. 2, 3, and 4.

From the EDITOR.—Revue Scientifique. Nos. 1-19, 2me Série, 1874.

From the AUTHOR.—Hereditary Genius. By Francis Galton, F.R.S.

From the AUTHOR.—The Principles of Science; 2 vols. By W. S. Jevons, F.R.S.

From Messrs. LONGMANS & Co.—A Manual of Anthropology, or Science of Man. By Charles Bray.

From the AUTHOR.—Catalogue of Anthropological Collection in the Bethnal Green Branch of the South Kensington Museum. By Col. A. Lane Fox, F.S.A.

From the ACADEMY.—Bulletin de l'Académie Royale de Copenhague. No. 3, 1873; No. 1, 1874.

From the SOCIETY.—Proceedings of the Asiatic Society of Bengal. Nos. 2-8, 1874. Journal, ditto, Part 1, Nos. 1 and 2, 1874; Part 2, No. 4.

From the SOCIETY.—Proceedings of the Philosophical Society of Glasgow. Vol. VIII. No. 3.

From the SOCIETY.—Bulletin de la Société d'Anthropologie de Paris. Vol. VIII. Nos. 5 and 6.

- From the ANTHROPOLOGICAL SOCIETY OF SPAIN.—*Revista de Antropologia*. Vol. I. No. 5.
- From the SOCIETY.—Proceedings of the Society of Antiquaries of London. Vol. IV. Nos. 2 and 3.
- From the ASSOCIATION.—Report of the British Association, 1873, Bradford.
- From the SOCIETY.—Proceedings of the Royal Society. Vol. XXII. Nos. 153-155, 1874.
- From the INSTITUTION.—Journal of the Royal United Service Institution. Vol. XVIII. No. 77.
- From the AUTHOR.—The Hill Ranges of Southern India. By Dr. John Shortt.
- From JAMES BURNS, Esq.—Human Nature, for August, September, and October, 1874.
- From the SOCIETY.—Memoirs of the Boston Society of Natural History. Part 2, Vol. IV.; Part 3, Nos. 1 and 2. Proceedings, ditto, Vol. XV. Nos. 3 and 4; Vol. XVI. Nos. 1 and 2.
- From F. V. HAYDEN, Esq.—Synopsis of the Flora of Colorado. By T. C. Porter and J. M. Coulter.
- From the ROYAL ACADEMY OF SCIENCES, BELGIUM.—Mémoires Couronnés et Mémoires des Savants Etrangers, Tome XXXVIII.; Mémoires de l'Académie Royale des Sciences de Belgique, Tome XL.; Bulletin, ditto, Tomes XXXV. and XXXVI.; Mémoires Couronnés et autres Mémoires, Tome XXIII.; Annuaire de l'Académie Royale de Belgique.
- From the Rev. T. FELTON FALKNER.—Journal of the Ceylon Branch of the Royal Asiatic Society for 1847-73.
- From the SOCIETY.—Transactions of the Geological Society of Glasgow. Vol. IV. Part 3.
- From the SOCIETY.—Bulletin de la Société Impériale des Naturalistes de Moscou. No. 4, 1873; No. 1, 1874.
- From the AUTHOR.—Nature's Revelations of Character. By Dr. J. Simms.
- From the ASSOCIATION.—Journal of the East India Association. Vol. VIII. No. 2.
- From the ASSOCIATION.—Journal of the Royal Historical and Archaeological Association of Ireland. Vol. III. No. 18.
- From the INSTITUTE.—Jahrbuch der K. K. Geologischen Reichsanstalt, Vol. XXIV. No. 2. Verhandlungen, ditto, No. 7, 1874.
- From the ASSOCIATION.—Proceedings of the Geologists' Association. Vol. III. Nos. 6, 7, and 8.
- From the ANTHROPOLOGICAL SOCIETY OF BERLIN.—Zeitschrift für Ethnologie. Nos. 3 and 4, 1874.
- From the EDITOR.—Cosmos di Guido Cora. Vol. II. Nos. 2 and 3, 1874.
- From the AUTHOR.—Du Prognathisme Alveolo-sous-nasal. By Dr. P. Topinard.
- From the EDITOR.—Archiv für Anthropologie. Siebenter Band, Nos. 1 and 2.
- From the INSTITUTE.—The Canadian Journal. Vol. XIV. No. 111.

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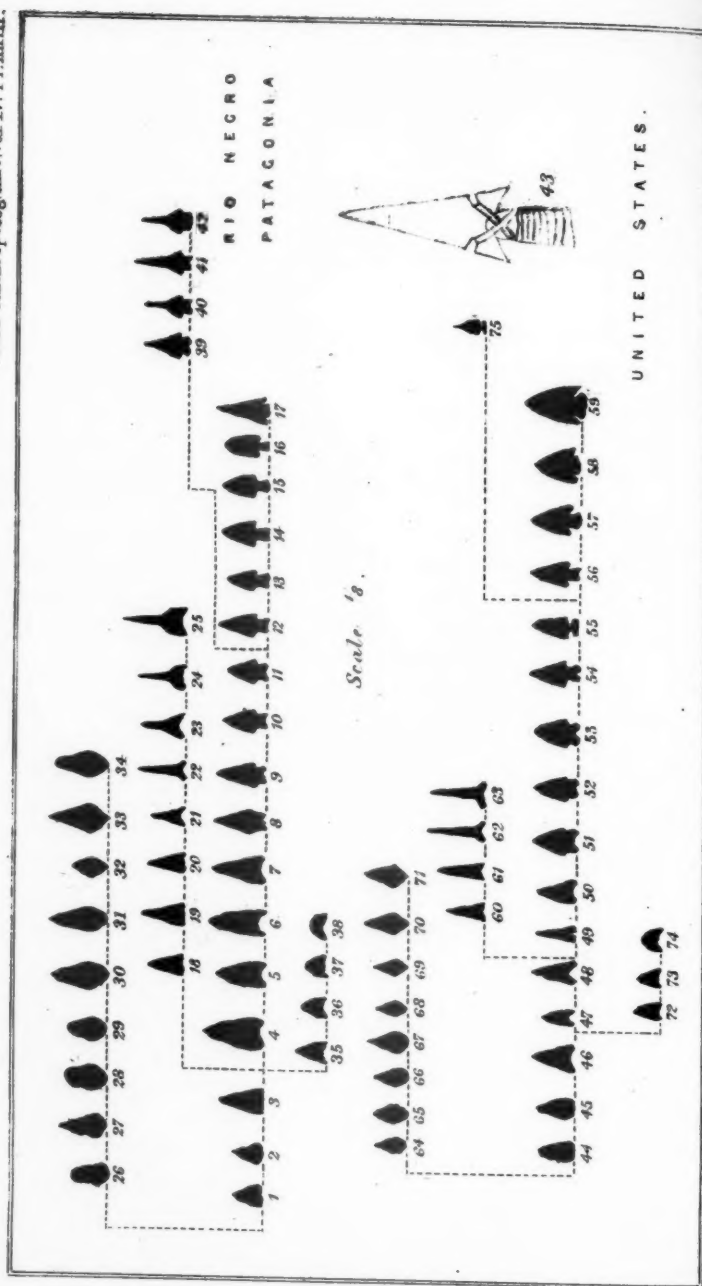


TABLE OF COMPARISON OF ARROW HEADS FROM
THE UNITED STATES & PATAGONIA.

TABLE OF COMPARISON OF ARROW HEADS FROM
THE UNITED STATES & PATAGONIA.



Fig 1.



Fig 2.



Fig 3.



Fig 4.



Fig 5.



Fig 6.



Fig 7.

C.F. & J. Litho, London E.C.

STONE IMPLEMENTS, RIO NEGRO,
PATAGONIA.

From the SOCIETY.—Transactions of the Royal Society of Victoria.
From the SECRETARY OF STATE FOR THE COLONIES.—The Narrin-
yeri; an Account of the Tribes of South Australian Aborigines.
By the Rev. George Taplin.
From the ASSOCIATION.—Report of the Devonshire Association.
From the EXECUTORS of the late HENRY CHRISTY, Esq.—Reliquiæ
Aquitaniæ. Part 15, September, 1874.
From the EDITOR.—Nature (to date).

The following paper was read by the author :

ON a SERIES of about two hundred FLINT and CHERT ARROW-
HEADS, FLAKES, THUMBFLINTS, and BORERS, from the RIO
NEGRO, PATAGONIA; with some REMARKS on the STABILITY
of FORM observable in STONE IMPLEMENTS. By Col. A. LANE
FOX. [With Plates xxiii. and xxiv.]

THE series of arrow-heads now exhibited was obtained by me a few weeks ago from Mr. W. H. Hudson, who collected them in the valley of the Rio Negro during a year's residence there, in 1870-1. They are a selection from about 500, the majority of which were broken, collected by that gentleman in various localities along both banks of the river, for a distance of 90 miles from its mouth. A valuable collection of birds obtained by Mr. Hudson at the same time has been described by him and Dr. Sclater, in the Proceedings of the Zoological Society in 1872.*

By a letter addressed to me by Mr. Hudson, which accompanied the transfer of these specimens into my collection, it appears that the arrow-heads and other articles of Indian workmanship are found on the sites of ancient villages, either on the margin of the river itself, or on the long, winding lagoons, now mostly dry, with which the valley is everywhere intersected. The valleys in that region run through high, terraced, table lands, and on the plateaux above there is no water, and but very scanty vegetation, so that it is improbable they could ever have been inhabited.

In the valley below, the sites of villages are numerous, sometimes two or more occurring within the area of one square mile, but till recently they have been concealed beneath a rank growth of reeds and grasses, and several inches of soil.

Within the last few years the valley, which is six to nine miles wide, has been overstocked with sheep, and the grass and herbage, closely cropped by them, has in many places been

* "On the Birds of the Rio Negro, Patagonia," by W. H. Hudson, C.M.Z.S., with notes by P. L. Sclater, Esq., M.A., Ph.D., F.R.S., Secretary of the Society. 'Proceedings of the Zoological Society for 1872,' p. 534.

killed by the long and frequent droughts. The light, sandy soil, no longer having anything to hold it together, is constantly being blown off by the violent summer winds. In the summer of 1870-1, when this collection was made, dense, blinding clouds of dust hung every day over the valleys, and Mr. Hudson frequently traversed many miles of country that were "as barren of vegetation as Trafalgar Square." In some places as much as twelve inches of soil had been removed by the wind, and the long-hidden villages and burial places of the Indians had thus been exposed.

The site of a village, "paradero," is discovered by small fragments of artificially broken stone, with which the ground is abundantly strewn. In some places these fragments are all that is to be seen, the most careful search being unrewarded by the discovery of a single arrow-head or other manufactured article. In others Mr. Hudson found numbers of circular, flattened mounds of clay, six to eight feet in circumference, and placed near together. Here arrow-heads, about three-fourths of them broken, were found; also mortars and pestles of stone, fragments of rudely ornamented pottery, bits of perforated shell, and beads of bone, often coloured blue, and stone balls varying much in size and form, the commonest form being an oval stone, flattened at the ends, and a round ball weighing about a pound, having a shallow groove about the middle. This last is the *Bola perdida*, a weapon still used by the Pampa and Tehuelche Indians. Fragments of bone were also common, most of them being of the diminutive *Ctenomys Magellanica* and *Caria Australis*. Bones of the guanaco and other large mammals are comparatively rare.* The burial place is generally discovered a mile or more from the village. The skeletons are placed in a sitting posture, and beads and arrow-heads are sometimes found with them.†

In his frequent visits to the villages, whilst making so large a collection, Mr. Hudson observed that in different villages there was a marked difference in the style of workmanship; in some the arrow-heads were exceedingly rough and blunt, in others sharp and elaborate, but sometimes there was also a difference in size and form. In answer to my inquiry whether this difference might have arisen from a difference in the quality of the material available in different localities, he informs me that the soil in Eastern Patagonia, in the valleys as well as on the plateaux, consists of rounded pebbles mixed with sand, so that wherever the stone-workers fixed their habitations,

* M. Moreno, however, speaks of the presence of guanaco bones, split longitudinally for extracting the marrow.

† According to M. Moreno, horse's bones are not found in these graves.

there the materials of all the different kinds used for arrow-heads were abundant. He does not, therefore, think that the difference of type in the different villages could have arisen from the cause suggested by me, but must be rather attributed to some families and villagers having acquired greater skill than others, and to their having adopted a slightly different variety of form. But although the materials of all kinds are abundant on the Rio Negro, they are not found on the Pampas, where arrow-heads are also discovered, and where the materials must have been brought several hundreds of miles.

One of the chief points of interest connected with the discovery of these arrow-heads arises from the use of this weapon having been given up by the Tehuelches and other tribes inhabiting Patagonia for some centuries past. According to Consul Hutchinson, the Mataguaya and Tobas are the only Indians who make use of the bow and arrow south of the Vermejo, which flows from the Bolivian Andes into the Paraguay river, in lat. 27 S.* South of this line it is not used until we come to the Fuegians on the Straits of Magellan.

I am indebted to Mr. Hudson for drawing my attention to the history of Schmidt, one of Mendoza's expedition, who settled in Buenos Ayres in 1535, and that of Rui Diaz de Guzman, who composed his history about 1600. From these works, which I have not had an opportunity of verifying, Mr. Hudson informs me that it appears evident the bow and arrow was not in use in Buenos Ayres at the time of the Spanish conquest, nothing but the spear and the bola perdida having been found in the hands of the aborigines of the Buenos Ayrian Pampas at that time.

Further south, in the neighbourhood of Port St. Julian, in the year 1519, Pigafetta mentions it as being used by the Patagonian Indians. Lieut. Musters, R.N.,† whose valuable paper on the "Races of Patagonia" was published in the first volume of the journal of the Institute, throws some doubt on the accuracy of Pigafetta's statement, and believes that he either met with a party of Fuegians, or else with a tribe of the Pampas Indians living on the sea coast further north, and gives as a reason for so thinking that he met with no arrow-heads in the soil lower south than the Rio Negro. It must be admitted, however, that Lieut. Musters's evidence on this point is purely negative, and as such cannot be held to weigh against the very circumstantial account of Pigafetta, who from his description of the affair, clearly refers to the gigantic Patagonian, and not

* 'Trans. Ethno. Soc.' vol. iii. pp. 321-334.

† "On the Races of Patagonia," by Lieut. Musters, R.N. 'Journal of the Anthropological Institute,' vol. i. No. 2, Oct. 1871, p. 198.

to the diminutive Fuegian. The country may also be inferred, from Pigafetta's description, to have been thinly inhabited, and this may perhaps, in some measure, account for the scarcity of arrow-heads in these parts.

Pigafetta says: "On leaving the islands of St. Elmo, St. Nicholas, and St. Clare, we ascended as high as 49° 30' south, where we discovered an excellent port (Port St. Julian), and as winter approached, we thought it best to take shelter here during the bad weather. Two months elapsed without our seeing any inhabitants of the country. One day, when we least expected anything of the kind, a man of gigantic figure presented himself before us. He capered almost naked upon the sands, and was singing and dancing, at the same time casting dust on his head. The captain sent one of our seamen on shore with orders to make similar gestures, as a token of friendship and peace, which were well understood, and the giant suffered himself to be quietly led to a small island where the captain had landed. . . . This man was of such immense stature that our heads scarcely reached to his waist. He was of handsome appearance, his face broad and painted red, except a rim of yellow round his eyes, and two spots in the shape of a heart upon his cheeks; his hair, which was thin, appeared whitened with some kind of powder." Then, after describing his cloak, which was made of the skin of the guanaco, he says, "This man also wore a sort of shoe made of the same skin." It was on account of this shoe, which made the feet of this man resemble the foot of a bear, that Magellan called these people Patagonians. "He held a short, massive bow," he continues, "the string of which, somewhat thicker than that of a lute, was made of the intestines of the same animal; in the other hand he held arrows made of short reeds, with feathers at one end, similar to ours, and at the other, instead of iron, a white and black flint-stone."* In several other passages Pigafetta also speaks of the arrows of these people, and always in connection with a people of large stature. Making, therefore, due allowance for exaggeration in regard to the enormous height of these people, there can be little doubt that it was a tribe of the Tehuelche race that he was describing; and we may therefore fairly assume that at least a portion of this race were armed with the bow and arrow four centuries ago.† But at what period it began to be disused, or what causes may have

* Pigafetta's "Voyage Round the World." Pinkerton's 'Travels,' vol. xi. page 314.

† It appears that arrows are mentioned in these parts by Francisco Sarmiento de Gamboa in 1580. "Description des Cimetières et Paraderos Préhistoriques de Patagonie, par François F. Moreno fils." 'Revue d'Anthropologie,' Tome troisième, 1874, No. 1.

led to its being abandoned over so large a portion of the South American continent, I am not aware that we have any evidence to show.*

Pigafetta also says, that with the same stone they employed to point their arrows, they also formed instruments to work wood. Lieut. Musters informs us that the only flint tools now used by them are scrapers, which the old women employ to scrape skins. Two or three small scraper-like forms found in the villages are exhibited, but none of sufficient size to be conveniently employed in dressing skins. One of them, a long flake, bevelled at the end (fig. 4, Pl. xxiv.), corresponds to the form known as a thumbflint in this country.

It only now remains to say a few words upon the forms of the arrow-heads, and on the connections deducible from them. I believe that, owing to our inability to understand the uncultured mental condition of savages and pre-historic races, we often lose sight of the inferences deducible from the stability of form observable in their arts and implements, and attach less importance than ought to be attached to minute varieties of structure. We are now beginning to understand what a grotesque conception of the powers above us our anthropomorphism has led us to form in times past; and in our automorphic view of savages we are equally misled by the tendency to underrate the time and mental effort necessary for the accomplishment of slight changes, so that we fail from this cause to appreciate the evidence of common origin afforded by the discovery that implements of uniform type are spread over large geographical areas.

In the last number of the "Memoirs of the Geological Survey of India," in an article on the 'Geology of Pegu,' by Mr. Theobald,† kindly sent to me by the author, I was glad to see that he had taken up this view of the subject, which, without dogmatising on what must still be regarded as an unsettled problem, may be safely pronounced worthy of the careful attention of anthropologists.

After describing the similarity of the stone implements of India and Europe, he says, writing from Burmah, and apparently in ignorance that opposite views to his own are entertained by many prehistoric archaeologists in this country: "Were there, however, any objectors so hardy as to argue that such similarity of monuments, both industrial, funereal, and religious, was

* M. Moreno, in the paper before referred to, says that no bones of the horse are found associated with the arrow-heads, proving that their use was anterior to, and, in his opinion, their discontinuance was consequent upon, the introduction of that animal.

† "Memoirs of the Geological Survey of India," vol. x. p. 2., 'Geology of Pegu,' by W. Theobald, Esq.

merely the result of fortuitous similarity of conditions, it would seem as though a conclusive answer to such a supposition was provided in anticipation in British Burmah. It seems difficult to imagine what differing conditions could have obtained during the savage infancy of our race in Burmah, greater than existed between India and Europe; yet directly we cross from India, properly so called, to the countries lying to the eastward of the Bay of Bengal, we find stone implements no less abundant than elsewhere, but of an entirely different type. We no longer find the familiar Indo-European type, either palæolithic or neolithic, but one seemingly autochthonous to the Malayan countries, and, both in size, shape, and design, displaying considerable divergence from any of the ordinary types of weapons found elsewhere."

When Lieut. Musters, about three years ago, was kind enough to make me a present of a single Patagonian arrow-head—the first, I believe, from that region that had been brought to this country—I was at once struck, as were also others to whom I showed it, by its being of an American type, similar to those which are commonly found in the surface soils of the United States. Had I found such an arrow-head on the surface of a ploughed field in England, whilst looking for the relics of prehistoric man, I should at once have conjectured that it might possibly have been an American arrow-head accidentally dropped there by a collector; and yet the difference between it and those of the European type of barbed arrow-head, such as I might have expected to find, consisted only in the slightly greater breadth of the tang and the somewhat different direction of the barbs.

It would have been unsafe, however, to have based any conjecture on the peculiarities of a single specimen; but now that we have this large collection of 200 specimens before us, we are able to affirm with certainty that the arrow-heads of these early inhabitants of the Rio Negro are nearly identical in form, and probably similar in development, to those of the United States.

Notwithstanding the slight difference of form in the different villages noticed by Mr. Hudson, it will be seen, by arranging the whole series in lines according to their affinities, in the manner represented in Plate xxiii., that there is a remarkable continuity throughout the series, each form passing into the other by connecting links, as is invariably the case in the weapons of savages, so that we are able to trace with tolerable certainty the sequence of ideas by which the most perfect and improved forms have grown out of the ruder forms.

Here, as in the United States and in Europe, we have four

types of arrow-head—the leaf-shaped, lozenge-shaped, triangular, and barbed; but, whereas in Europe the leaf-shaped is by far the commoner form, these specimens agree with those of the United States in presenting but few specimens of that variety. The lozenge-shape is also of rare occurrence in the United States, and in this series there are but two specimens—Nos. 33 and 34, Plate xxiii.—which approach to that form, if indeed it can be recognised at all in the collection before us. The triangular form is common in all three localities, and in all three there are sub-varieties of these with straight and concave bases. But it is in the form of the “tang” or stem of the barbed variety that the distinctive difference between the European and American arrow-heads consists, and in this respect the Patagonian arrow-heads resemble closely those found in the United States.

The tang of the European barbed arrow-head appears to have been introduced by narrowing the lower half of the leaf-shaped or lozenge-shaped form, or that of the simple flake, which latter, when formed of a homogeneous flint, naturally assumes the leaf-shaped form in the act of being flaked off from the core. The binding which secured the tang to the shaft was wound spirally round the end of the shaft, embracing the tang of the arrow-head between the split ends of the shaft; a narrow tang corresponding to the dimensions of the end of the shaft must, therefore, have been used from the first.

But in running the eye from left to right along the series of Patagonian arrow-heads as I have arranged them in Nos. 1 to 17, Pl. xxiii., it appears probable that the triangular form was the first to suggest itself to the American savage. This was probably bound on to the shaft as it is bound on by the Californian Indians who now use it (fig. 43, Pl. xxiii.), and as it is found bound to the short harpoon-heads to which some of this form are found attached in the Peruvian graves, by means of a string of gut or cotton wound cross-wise and embracing the sides of the triangular arrow-head, the base projecting on each side of the shaft.

In order to guard the edges of the string, where it passed over the sides of the arrow-head, from injury in piercing the animals at which it was shot, the part of the sides which was contiguous to the string was improved by being sunk a little (figs. 8, 9, 10, Pl. xxiii.) and allowing the part of the flint which was before the string to project, so as to guard the string from friction against the substance pierced. This projecting shoulder appears to have developed into a barb in the more advanced specimens (figs. 11 to 17, Pl. xxiii.), whilst the base, reduced by the part taken off to receive the string, diminished gradually into a tang. It still, however, retained

the trace of its origin by being broader than the tang of the European barbed forms, and by retaining in some instances the concavity at the base (figs. 6 to 11, Pl. xxiii., and fig. 6, Pl. xxiv.). This latter is never seen in the tangs of the European specimens, but only in those of the United States and Patagonia.*

It appears, therefore, probable that in Europe and America the same, or nearly the same, form of barbed arrow-head has been produced by different lines of development, and that in the United States and Patagonia the development has been the same. A series of North American arrow-heads showing a similar development is arranged in Pl. xxiii., figs. 44 to 75.†

I know of only one European specimen from Scandinavia figured in Professor Nilsson's work which at all resembles the American type. It is of triangular form, with side notches, but has a straight base.

In the colour of the skin, the hair, and other physical peculiarities, the inhabitants of the two continents of America have been recognised by Professor Huxley and others as being of the same primeval stock. May we not regard the resemblances that have been noticed as indicating probable identity of culture?

It would be contrary, however, to all experience to expect that forms of implements in regions so remote from one another as the United States and Patagonia should be perfectly identical. There is one variety in the series before us which, in so far as I know, appears to be unique. Some of the points both of the triangular and barbed varieties are very much elongated and tapered, giving the sides of the arrow-head in that part a concave form, and these elongated points appear to have developed into and to have been used as borers for piercing holes in hard substances. (Figs. 23 to 25, and 39 to 42, Pl. xxiii., and fig. 5, Pl. xxiv.) Of this fully-developed borer, one very well-defined and elaborately chipped specimen is exhibited (fig. 7, Pl. xxiv.). Fig. 75, Pl. xxiii., from the Mississippi, is the only other example of this form that I have seen; it is in the Christy collection, but it can hardly be considered typical.

It is stated by Professor Nilsson, in his work on the "Stone Age of Scandinavia," translated by Sir John Lubbock, that the

* It is probable that in some cases this reduction of the sides of the triangular arrow-head may have been introduced to enable it to fit into a socket in the shaft, and thus become detached from the shaft in the wound; but in the majority of cases the expansion of the tang at the base appears to me to prove that they were tied on, as in the Californian specimen. Whatever the object, it applies equally to both countries.

† It is worthy of note that the triangular arrow-head is seldom or never used by the Esquimaux, and the cross binding is never employed by them.

Fuegians use their arrow-heads as knives, as do the Kaffirs the iron-heads of their assegais. The Patagonian Indian would no doubt use them for the same purpose, and by boring holes with his arrow-head, he would be led to adapt the point to this purpose, and gradually to construct special boring instruments of this form. The resemblance between the fully-developed Patagonian borers here exhibited and some of the European flint-borers found in the surface soils is very close, but I am not aware of having ever noticed any European arrow-heads which appeared to have been especially modified for boring purposes.

There are also some varieties of North American arrow-heads which are not represented here, as, for instance, a chisel-shaped form, and a particular variety of the barbed form, with deep side-notches, and barbs extending to the line of the base. (Figs. 58 and 59, Pl. xxiii.)

Here, as in North America, Europe, and Japan, we find one or two examples of arrow-heads with the sides carefully serrated. The close resemblance of these serrated specimens from different countries might at first sight be taken to denote special evidence of connection, but I am myself inclined to attach less importance to this, as implying identity of origin, than to some other forms of implements. The mode of working flint and other materials which flake off with a conchoidal fracture, by taking off flakes and leaving facets from the edge alternately on opposite sides, naturally produces a more or less serrated edge, in consequence of the projection of the edges between the facets. A perfectly serrated edge, therefore, appears to me to be a refinement of workmanship produced by deepening the facets, which might or might not have been produced independently in different countries.

I trust I have not over-tried the patience of the meeting by dwelling too minutely on these details of construction, in describing what we must regard as part of the written language of prehistoric ages. If we are to study the implements of savages, we must endeavour to regard them as savages would have done. Trivial as some of these details may appear to us, we must remember that to the Indian, living by the chase, an improvement in the mode of fixing an arrow-head, affecting, as it does, his means of subsistence, must have been of far greater importance to him than an improvement in a telegraph or a steam engine can be to us, and must, therefore, have received the attention of the best intellects of the time; and as we know that it is only by the gradual evolution of scientific ideas that modern improvements have been brought about, so we must also look for similar stages of evolution in the simple

arts of savages. In attempting to solve the problem as to the unity or diversity of origin of the culture of different geographical areas, it is only by comparing, by means of these details, like courses of development in different countries that we can approach with any hope of success what Professor Nilsson has justly termed "one of the great, still unsolved enigmas of anthropological science."

EXPLANATION OF PLATES XXIII. AND XXIV.

Plate xxiii. contains a series of outline figures of arrow-heads, reduced to one-eighth natural size, showing a parallel development in Patagonia and the United States. The ruder forms are on the left. In running the eye from left to right a gradual transition to the more advanced forms may be observed.

Plate xxiv. contains drawings of five arrow-heads, one scraper, and one borer, from the Rio Negro, Patagonia.

APPENDIX.

NOTE on the MINERALOGICAL CHARACTERS of the STONE ARROW-HEADS from the RIO NEGRO. By F. W. RUDLER.

AN inspection of Colonel Lane Fox's fine collection of arrow-heads, &c., recently brought from the Rio Negro, shows that by far the greater number of these objects are worked in siliceous stones, such as hornstone, jasper, and other compact and cryptocrystalline varieties of quartz. For a few of the arrow-heads a translucent, milky *chalcedony* has been employed; and in one specimen the chalcedony is clouded with brown markings, due probably to the presence of oxide of manganese. Many of the arrow-heads are wrought in different kinds of *jasper*, which present red, brown, and yellow colours, and are in some cases banded, as in the well-known "riband jasper." But the material of which the greater number of these objects is composed should rather be called *hornstone* or *chert*, and in some specimens the stone might almost be taken for ordinary *flint*. Indeed, the mineralogical differences between some of these siliceous stones is extremely trivial. In flint the fracture is eminently conchoidal, whilst in chert it is rather more splintery; jasper is distinguished by its opacity, most of the other forms of silica being translucent at least on the thin edges; between hornstone and chert there is really no essential point of difference. Many of these siliceous stones occur as nodules and bands in limestone rocks, such as the flint of the Chalk, and the chert of the Mountain Limestone; whilst chalcedony and jasper, and

their mixtures, forming agates, are found in basalts and similar eruptive rocks, where they occur either as veins or, more commonly, in vesicular cavities, giving an amygdaloidal character to the rock which contains them.

Not a few of these arrow-heads are worked in those fine-grained, nearly black stones, which are at all times difficult to determine without the aid of the microscope. Some of these are certainly fragments of *basaltic rocks*; others may be dark-coloured *felstones*; whilst others again appear to be flinty-jasper, or *Lydianite*.

It is believed that the materials in which these objects are wrought have been derived from pebbles scattered over the surface of the country in which they are found. According to Mr. Darwin, the country around the Rio Negro forms a plateau of old Tertiary sandstone, capped by a bed of gravel ten or twelve feet thick, consisting of pebbles of porphyritic and quartzose rocks. Prof. Burmeister states that the pebbles of which the Rio Negro arrow-heads are formed are brought down by the river from the Cordilleras.

DISCUSSION.

Mr. Ex-Consul HUTCHINSON remarked that the observations made with reference to the gravelly and sandy soil having no vegetation capable to sustain life, and hence no means of supporting inhabitants, could not be applied to Patagonia any more than to Peru. He had travelled over scores of miles in the latter country where there was not a blade of grass nor a drop of water; the ground all sand and rocky detritus,—mountain and valley. Yet the earth was literally carpeted with bits of broken crockeryware, and ruins of walls, thus proving that the places had been formerly inhabited. It was to him one of the most puzzling things even to guess how the people could have lived in those times spoken of. As regards the Patagonians being a race of giants, he had read a paper* before the Ethnological Society (Professor Huxley, F.R.S., President, in the chair), "On the Tehuelche Indians of Patagonia," in which he submitted photographs of some of these (whom he had conversed with in Buenos Ayres), and proved that they were not a race of giants. The testimony of Mr. Jones, the Welsh Missionary at Chupat, was also given in corroboration; and as these Tehuelches were the tribe of Patagonians described by Magellan as gigantic, this must be classed with other dead myths and buried fables. It appeared to him that the strangeness on which Colonel Lane Fox commented, in regard to the arrow-heads of Patagonia being similar to those found in the United States, was not more remarkable than that the mounds, explored by Messrs. Squiers and Davis, in the valleys of the Ohio and the Mississippi turned out

* Vide 'Transactions of the Ethnological Society,' vol. 7, page 313.

items of prehistoric anthropology nearly the exact counterpart of those he had excavated in Peru, and which were now being exhibited at the Bethnal Green Museum. He had never found arrow-heads in Peru, but he had seen bows and arrows reported to have been obtained at Arica. In the mounds examined by him the weapons there were clubs, together with slings; and the Institute would remember that when reading two papers last year* he had shown some skulls on which the marks of sling-shots were visible. The weapons of the ancient South Americans on the eastern side of the Andes were as yet little known. At the period of the Spanish invasion the first town of Buenos Ayres, erected by Mendoza, was destroyed by the Guaram Indians (who at the time counted some millions in the country) throwing fire-balls on the houses, which latter were made of wood. The bola was not a general South American weapon. At least now-a-days it is confined to the plains of the Pampas, and Gran Chaco, in the Argentine Republic. Even there it is not used as a fighting weapon, but for the purpose of the chase. Horses, cows, and ostriches are brought down by the Gaucho with flinging the bolas. He was sorry to add, although not making it a *post hoc ergo propter hoc* style of argument, that with the decrease or gradual disappearance of the huanacos, as mentioned by Colonel Lane Fox, so the Tehuelche Patagonians, whose only clothing was the skin of a huanaco, were likewise dwindling away, as were indeed all the primitive Indian races of South America.

Mr. MONCURE CONWAY said that, although he could only bring the eye of a layman to bear on the specimens, it might possibly interest Colonel Lane Fox for him to say that he recognised in the American collection two arrows—the white ones—as of a kind which it was not uncommon to pick up in the northern part of Eastern Virginia, where he (Mr. Conway) was born. It was a region over which Powhattan, the famous Indian chief, whose daughter Pocahontas was associated by legend with the name of the discoverer of Virginia, had reigned. It was considered by boys a matter of importance to get hold of such arrow-heads for their arrows, and they believed that an arrow so tipped would go farther and truer than with the ordinary ferrule. There was also an orthodox way transmitted of tying them in, catgut being used, and the arrow-head being sunk quite deep in the split of the arrow.

Mr. HYDE CLARKE remarked that Colonel Fox had not unduly dwelt on the importance of minute details. These in some cases became characteristics of race, and evidence of a route of migration. The same observations applied to words, the application of which was too much neglected by anthropologists. The researches of the author, and the application of a classification of development to the museum, were labours in a right direction, which would bear great fruits. The observations of Colonel Fox on the distribution of the boomerang supplied a correction to Darwin's "Descent of Man," i. 183, and in this he concurred on the conjoint evidence of

* *Vide 'Journ. Anthropol. Inst.'* vol. 3, page 311.

philological facts. With regard to the suggestion that the distribution of hunting weapons might be affected by local influences, it was not only the case that the guanaco was driven back by the failure of its fodder, but in Australia the sheep, by destroying the kangaroo grass, and causing other grasses to spring up, were driving back the kangaroos. It was well known to many of them, as travellers, that in various parts of the world the practice prevailed of burning forest and scrub to favour the growth of tender-growth, and it was probable that this easy destructive process always took place where pastoral tribes took possession of a district. Thus, while hunting became less necessary by the supply of other animal food, the harbour for the beasts of chase would likewise be destroyed; at the same time the cover for birds would also be destroyed. Thus weapons for the chase of small beasts and birds would go out of use, and those alone would remain which were needful against lions, leopards, or wolves terrifying the herds.

Mr. JEREMIAH remarked that what was now required to advance the study of Prehistoric Archaeology was a philosophical generalisation of the results of the explorations in North and South America, with a view to a clearer comprehension of the problems presented to us by the antiquities of the northern, central, and southern divisions of the New World. He referred to the tradition that the stone arrow-head, or celt, was long considered in the British Isles to be a thunderbolt. It was Mr. Martin, in his "Philosophical Grammar," published in 1738, who, he believed, first gave a rational explanation of the origin of that popular error. They are also known as "elfshots" here, and in Scandinavia and other parts of Europe. He thought it important to collate the traditions relating to stone weapons; in fact, as far as our knowledge has gone, much good has already accrued to archæology. It would be interesting to know whether there was any tradition or remnant of folk-lore of this description relating to stone weapons of South America.

Mr. PARK HARRISON and the PRESIDENT also joined in the discussion, to which the author replied.

The author read the following report:

REPORT on the DEPARTMENT of ANTHROPOLOGY at the BELFAST MEETING of the BRITISH ASSOCIATION for the ADVANCEMENT of SCIENCE, 1874. By F. W. RUDLER, one of the Secretaries of the Department.

ALTHOUGH it can hardly be said that the Belfast meeting was marked by any strikingly important contribution to Anthropology, it must yet be admitted that the list of papers communicated to the department was sufficiently full and varied to fairly represent most branches of our science. After reject-

ing two or three papers which dealt with subjects beyond the scope of Anthropology, and transferring some others to sections where they might be more appropriately discussed, the committee found itself in possession of no fewer than five-and-twenty communications, giving fair promise of a successful session. Nor was this promise disappointed. During the five days on which the department sat, the crowded meeting-room day after day testified to the interest which was uninterruptedly sustained in our proceedings.

One of the lecture-rooms in the Queen's College was appropriated to the use of the Anthropologists, but it was perhaps to be regretted that this was situated at some little distance from the anatomical class-room in which the sectional committee met, so that when this body resolved itself each morning into the sub-committees representing the three departments, a general migration of the Anthropologists took place to their own rooms across the college green. It is clearly a matter of convenience to accommodate, if possible, the several departments of the section under the same roof.

Dr. Redfern, Professor of Anatomy and Physiology in the Queen's College, Belfast, presided over the section of Biology, whilst Sir William R. Wilde, of Dublin, occupied the chair in the department of Anthropology. The list of vice-presidents of the section included, in addition to Sir W. Wilde, the names of Col. Lane Fox and Professor Rolleston as representatives of our science; whilst Mr. J. J. Murphy, of Belfast, and the reporter, acted as secretaries. The following is a list of the members of this Institute who were present at the Belfast meeting:—Sir George Campbell, Sir Walter Elliot, K.C.S.I., Colonel A. H. Lane Fox, F.S.A., Sir G. Duncan Gibb, Bart., M.D., Sir W. Vernon Guise, Bart., F.G.S., Dr. Hooker, C.B., P.R.S., Mr. Consul Hutchinson, F.R.G.S., Professor T. H. Huxley, LL.D., F.R.S., Sir John Lubbock, Bart., M.P., F.R.S., Rev. J. McCann, D.D., Mr. M. Moggridge, F.G.S., Dr. H. Muirhead, Dr. P. O'Callaghan, F.S.A., Mr. J. S. Phené, F.G.S., Captain Bedford Pim, R.N., Dr. W. F. Ramsay, Mr. F. W. Rudler, Mr. W. Spottiswoode, F.R.S., and Mr. R. H. Tideman, M.A.

It was arranged between the three departments of the section that not more than a single address from the chair should be delivered on the same day; and that during the delivery of the address in one department proceedings should be suspended in the others. In accordance with this arrangement, Professor Redfern opened the proceedings on Thursday morning with an address to Section D; Dr. Hooker on the following day delivered his discourse to the Department of Zoology and

Botany; and on the Saturday morning Sir William Wilde addressed the Department of Anthropology. In order to present a faithful record of the proceedings, it is desirable to notice the several papers in the order in which they were read, and consequently this address will be duly noticed among the Saturday's proceedings.

When the Anthropologists had assembled in their own room on Thursday morning, after the delivery of Prof. Redfern's address, the business of the department was opened by Mr. Consul Hutchinson's paper "On the Anthropology of Prehistoric Peru." It is unnecessary to enter into an analysis of this communication, as the members of the Institute will probably have an opportunity of hearing it read during the present session. The author expressed his belief that the original occupants of South America—notably those of Peru—may have been the very oldest people on the American continent. He deplored our ignorance of the history of Peru previously to the time of the Incas, and referred to the popular errors traceable to the romantic stories of the early Spanish chroniclers. Many of the prehistoric ruins were described, special reference being made to the old burial-mounds and their contents. A comparison was drawn between these mounds and those of the Ohio and Mississippi valleys, and a similarity traced between the process of inhumation used by the early Peruvians and that practised in prehistoric times in Ireland. The paper was illustrated by a large number of interesting photographs, diagrams, and sketches, representing many of the ruins of prehistoric Peru, and including some of the antiquities in the author's collection, now exhibited in the Bethnal Green Museum. These diagrams, after the reading of the paper, were transferred to the temporary museum placed under Mr. E. Ray Lankester's charge. This plan was followed throughout the meeting; whenever diagrams or specimens had been used in illustration of a paper, they were transferred as soon as possible to the museum, where they might be studied at leisure, day after day, until the meeting was broken up. So obvious were the advantages of this arrangement that it is to be hoped the experiment so successfully made on this occasion may be repeated at future meetings, and that contributors of memoirs may be induced to send such illustrations as will increase the value of their communications and contribute to the success of the gathering.

Anything bearing upon the ethnology of our own islands is sure to be popular, and a lively discussion was consequently excited by Dr. Beddoe's paper "On Modern Ethnological Migrations in the British Isles." In the present day we witness an extensive migration of our people executed peaceably,

gradually, and by individuals and families rather than in mass. As a rule, these migrations take place from poor to rich districts, from hill to plain, from country to town, from ill-employed to busy centres, and from healthy to unhealthy districts. In England a constant stream of population sets towards the capital. In Scotland two currents may be traced—the one tending towards England, and the other towards Glasgow. The net result of such migrations is to strengthen the Keltic element in our large towns. Thus, Glasgow receives a rapid influx of Irishmen and Highlanders; Liverpool attracts great numbers of Irish, Welsh, and Scotch; whilst Irish blood may be found abundantly in Manchester, and in most of the colliery districts of the North of England. In London the relative number of Irishmen is not large, whilst in Bristol it probably does not exceed three per cent., and this in spite of the easy communication with Munster. In fact, the effect of mere geographical proximity is often overborne by other causes which influence ethnic migrations. In Ireland the great focus was formerly Dublin, but of late years Belfast has become the chief centre of attraction.

At previous meetings of the Association Sir Duncan Gibb had brought forward no fewer than nine examples of centenarians, whose physical condition he had personally examined. On the present occasion he read a paper "On Longevity at Fifty-score eleven years," in which he detailed the evidence by which he had become convinced that Mrs. Elizabeth Leatherlund, of Tring, in Hertfordshire, had attained to the age of one hundred and eleven years last April. On a careful examination of the old lady, the author had marked a general absence of senile changes in the tissues. The heart, the lungs, and other internal organs were still perfectly healthy, and the epiglottis was erect, as in the other centenarians previously examined.

As might be expected, a good deal of interest, both scientific and popular, has been excited by the two boys who have recently been brought to Italy as representatives of the Akka dwarfs described by Dr. Schweinfurth. It is alleged that these children were given by King Munsa to the Italian traveller Miani, after whose death on the White Nile they were taken on to Cairo by a Dinka soldier. At Cairo they were examined by Professor Owen, and by Professor Carniola of Milan, and were afterwards conveyed from Egypt to Italy by Professor Panceri, of Naples. A short vocabulary obtained from these boys has been forwarded to Mr. Hyde Clarke, and, at the request of the Italian Geographical Society, he has sought to determine the relations of this language. In "A Preliminary Note on the Classification

of the Akka and Pigmy Languages of Africa," Mr. Clarke gave us the result of this inquiry. He finds that the language is not related to the languages of the Bushmen, the Mincopies, the Fuegians, the Shoshoons, and other short races, but that it conforms to that of the Obongo discovered by Du Chaillu in West Africa. As the ancients had referred to pigmies in India as well as in the Nile valley, the author had made a special examination and found traces of Akka and Obongo among the Garoos, the Nagas, the Gadaba, &c. Moreover, the African types were distinctly traceable in languages related to the Carib in South America. It is evident, however, that the shorter races and their languages are mixed up with those of more powerful peoples.

In a "Note on Circassian and Etruscan," Mr. Hyde Clarke gave the result of some further researches on the affinities of Circassian with certain American languages. He found that it was closely related to the Otomi, Tarahumara, Cora, and Huasteca of Mexico. The author regarded the Etruscan as distinctly Sumirian on the evidence of its words, its grammatical forms, its numerals, its mythology, and its topographical names.

Friday was devoted, as far as possible, to papers bearing upon the Ethnology of India. After Dr. Hooker had delivered his address to the Department of Zoology and Botany, the Indian programme was opened by Mr. Drew's paper "On the Distribution of the Races of Men inhabiting the Jummoo and Kashmir Territory." The author had resided for several years in this district; and although his attention had been chiefly directed to geological studies, ethnology had by no means been neglected. Four races of Aryan origin, found in the basins of the Chinab and Jhelam rivers, were described in detail; these were the Dogras, the Paharis, the Kashmiris, and the Chibhalis. The author also noticed the Dards, whom Dr. Leitner described some time ago, and three Thibetan peoples, known as the Champas, the Ladakhis, and the Baltis. The physical features of each of these peoples were illustrated by large cartoons, and by a good series of photographs, whilst their distribution was clearly traced upon a large map, coloured ethnologically.

One of our members, Mr. M. J. Walhouse, contributed an interesting paper "On a Leaf-wearing Tribe on the Western Coast of India." During the author's long residence at Mangalore he had ample opportunity of studying the small tribe known as the Korägars. Among the peculiarities of these people may be mentioned the fact that many of the females wear screens or aprons woven of twigs and green leaves, with

which they cover the buttocks. As this covering is worn over the clothes, it is, of course, of no possible use; but it represents the survival of an ancient custom which was at one time universal in the tribe, and is said to have been a badge of servile degradation. The custom appears to be dying out, and Mr. Walhouse did well to put it on record before it becomes extinct.

Some further observations "On the rude Stone Monuments of the Khasi Hill Tribes" were contributed by Major Godwin-Austen. He described in detail the monoliths standing in the village of Nougshai, near Shillong, and the cairns in the Khasi hills, which had not been previously noticed.

It was to be regretted that engagements in other sections prevented Sir George Campbell from coming into our department until late in the day. A good audience, however, was still present to hear the excellent address which he delivered "On the Peoples between India and China." Sir George dwelt upon the Chinese characters exhibited by the Eastern tribes lying between and partly covering the Himalayas. About Darjeeling most of the people speak Thibetan languages, but exhibit decidedly Chinese features in their civilisation; the Garoos, too, hold many customs akin to those of the Chinese, and the Kookees, about whom so much was learnt by the Looshai expedition, are undoubtedly a Hindoo-Chinese tribe. Reference was also made to the Nagas and the Khasi hill tribes, and considerable amusement created by a description of the position which women occupy among the Khasis. The woman stands at the head of the family; property descends in the female instead of the male line; and in fact the positions of male and female are completely reversed, the woman enjoying full social rights, but at the same time taking the burden of all the work.

After Sir G. Campbell's address had been delivered, a paper was taken "On the Agaw Race in Caucasia, Africa, and South America," by Mr. Hyde Clarke. The author gave a detailed account of this family of languages, as one which denoted a general migration throughout the world. After examining the Abkhass of Caucasia, he passed to the Nile region, and compared the language of the Agaw with that of the Falasha, or Black Jews, whilst in India he referred to the Kajunah and Gadaba as being possibly allied. Then tracing the migration across the Pacific, he showed that the language is widely spread, under the names of Guarini and Omagna, in Brazil and Paraguay. Finally, he suggested that some of the earlier river names, both of the old and the new world, may be referred to the Agaw.

Whilst Saturday was more or less of a holiday to several of the sections, it was one of the busiest days to the anthropologists. It was indeed on Saturday morning that Sir William Wilde delivered the address which, in the usual order of things, would have been given at the opening of the proceedings. After paying a graceful tribute of respect to Professor Phillips, to whom Anthropology, like most other sciences, was indebted, Sir William touched lightly upon several subjects of interest to anthropologists, such as the probable existence of an age of copper prior to that of bronze; the latitude with which the term "prehistoric" is used; the educational value of museums, and the necessity of arranging every collection according to some scientific plan. Turning from these prefatory observations, Sir William addressed himself to the task of tracing the history of the peoples who have successively occupied Ireland, and the representatives which they have left in the present population. When prehistoric man first set foot on the Land of Erin it is of course impossible to say, but Sir William believes that it was not until after the extinction of the mammoth and the reindeer, probably of the musk-sheep, and perhaps of the "Irish elk." Much of the early history of Ireland, as recorded by annalists, is of a very legendary character; but Sir William believed that the story of the Grecian hero, Partholon, who is said to have landed in Dublin Bay and occupied the Hill of Howth, has received striking confirmation by archæological investigations in the locality. Passing over the Femorians, the Nemedians, and other invaders whose names figure in the early annals of Ireland, Sir William proceeded to describe the Firbolgs, the Tuatha-da-Dannans, and the Milesians; three peoples who are said to have successively conquered and occupied Ireland. He described in detail the physical and social characters of those ancient peoples, as recorded by the Irish annalists, and expressed his opinion that they all belonged to a common Keltic stock, their modern representatives being found in the Irish-speaking population of the present day. Sir William also referred to the ethnological influence exerted upon the Irish by the incursions of the Norsemen, and by the subsequent Anglo-Saxon invasion; and coming down to more recent times, alluded to the effect of the English and Scotch settlers in Ireland, especially in the province of Ulster.

At the conclusion of this interesting address a general exodus was made from the anatomical lecture-room, in which it had been delivered, to the anthropological meeting-room, where the Rev. Canon Hume, of Liverpool, proceeded to discourse upon the "Origin and Characteristics of the People in Down and Antrim." In tracing the history of the people who occupy

both sides of the valley of the Lagan, he passed over the early history of the district, and, commencing with the plantation of Ulster, showed the positions taken up by the three great elements of the population, the English, the Scotch, and the Irish. The manners and customs of these people were compared and contrasted, and the origin and distribution of certain local and personal names were traced. Attention was directed to the language of the district, which, down to 1820, had been three-fold, and to the distribution of religious creeds, a subject which was illustrated by a body of statistical information. Finally, the Canon sought to show that the rivalry caused by these various elements of population had not been an unmixed disadvantage to the district.

Following immediately upon the discussion of this paper came another communication of much local interest by Mr. Hyde Clarke. In a "Note on the River-Names and Populations of Hibernia, and their relation to the Old World and America," the author showed that reference to a Keltic, or even to a Phœnician origin was insufficient to explain many of the Irish river-names. In fact, the forms of such names in these islands are not confined to the West, but occurred in ancient India, and elsewhere. Thus the *Senus* (*Shannon*) may be compared with the *Sinnus* of Italy, the *Arsinos* of Greece, and the *Sonus* of India. Moreover, many of the British and Irish river-names may be strictly paralleled with certain South American names; for example, the *Senus* conforms with the *Sinu* of New Grenada. Such words, so far from being strictly Keltic, must be referred to a widely-spread system of nomenclature common throughout the ancient civilised world, and Mr. Clarke has been led to refer them to that early period of culture represented by the Sumir and Accad of Babylonia, which he distinguishes as the Sumirian.

Most of the communications brought forward on Monday bore upon questions of Prehistoric Archæology. "A glimpse of Prehistoric Times in the North of Ireland" was the title of the first paper; a paper in which Mr. W. J. Knowles, of Cullybackey, described a recent find of worked flints at Port Stewart, in the co. Derry. The objects were obtained from some pits hollowed out by the wind among the sand-hills near the mouth of the river Bann. Mr. Knowles had collected great numbers of scrapers and arrow-heads of flint, hammer-stones of quartzite, and fragments of coarse pottery, associated with the bones and teeth of the horse, the ox, and the dog, and with marine shells of recent species. These objects have been derived from certain blackened layers, representing the old surface on which the flint-using people once lived, and which is now covered with

deposits of sand from ten to thirty feet in thickness. The flint implements appear to have been fashioned out of rolled flints collected on the shore; but the author thinks it likely that mining operations were carried on in the hard chalk, in order to obtain flint for the manufacture of implements and weapons; and from the fact that the chalk in Ireland is confined to the north-eastern corner, it seems probable that this district was the chief centre of Irish flint-working.

In continuation of a subject brought forward at Bradford, Mr. Phené read a paper "On an Age of Colossi," illustrating his subject by a large collection of beautifully-executed drawings and photographs. The author adduced a number of illustrations of similar customs among the Egyptians, the early inhabitants of America, and the Chinese, and argued in favour of the common origin of these widely-separated peoples. Drawing a parallel between the colossal monuments along the banks of the Nile and those of the Mississippi valley, he suggested a relation between the religious ideas of the early inhabitants of the two countries. In China we find, instead of human colossi along the margin of rivers, huge figures of animal forms bordering the sinuous roads which lead to the tomb-temples. Attention was called to the Wilmington giant, mentioned by Mr. Phené last year, and to some other human figures of colossal proportions in our own islands.

Bearing upon this subject was another paper by Mr. Phené, entitled "On Natural Mythology, and some of the incentives to its adoption in Great Britain and Ireland." The author cited a number of instances of the mythological impersonation of natural objects, and exhibited drawings of rocks in various parts of the world, which exhibit accidental shapes curiously suggestive of the human face. He conceived that veneration for these natural objects would lead to the selection of their localities for the celebration of religious rites, and for the burial of the dead; and he believed that these semblances of the human form would ultimately come to be identified with the dead, and the locality would thus be regarded as the abode of some divinity.

Reverting to the papers of local interest, we may note a communication from Mr. W. F. Wakeman, "On Irish Crannogs and their Contents." The word *crannog* (connected with the Irish *crann*, a tree) is applied to those islands, altogether or partly artificial, which have been inhabited in many of the Irish lakes. The crannog was either oval or circular in form, and the margin was strongly staked with piles of timber, whilst the whole was enclosed by rows of palisading for purposes of defence. A loghouse, or more than one, might generally be found

within the enclosure. Wooden boats, stone and bronze implements, and coarse pottery were commonly found in these islands, and they have also yielded vast quantities of animal remains; thus, not less than 150 cart-loads of bones were obtained from a crannog at Lagore, near Dunshaughlin, in the county Meath. These bones, having been submitted to Professor Owen, were found to represent the *Bos longifrons*, the pig, red-deer, sheep, goat, dog, horse, and ass. It is clear, from the character of some of the relics, that the crannogs may be as old as the neolithic and bronze ages; but it would appear that they continued to be occupied to a much later date, and many of these secluded island-dwellings have down to modern times been the favourite localities for the distillation of *potheen*.

A general account of the "Distribution of Worked Flints in the Counties Antrim and Down" was given by Mr. William Gray, and illustrated by a large number of specimens. The author defined the various types of implements, and noted the special localities within this area where each form had been discovered. As secretary of the Belfast Naturalists' Field Club, Mr. Gray was in possession of much local information, which was freely given to our members. It would, indeed, be a flagrant injustice to the members of this club to omit mention of the valuable aid which they rendered to the Association in general, and of the liberality with which they distributed an excellent Guide-book, prepared for the occasion by several members of the club, and containing much local scientific information, including chapters on Ethnology and Archæology. The club also deserved well of the anthropologists for bringing together an interesting collection of Irish antiquities, temporarily exhibited in the Ulster Hall, to which members of the Association were freely admitted. Nor should it be forgotten that the Belfast Natural History and Philosophical Society distributed copies of a catalogue of skulls, and casts of skulls, collected from various Irish sources by the late Mr. John Grattan, and now the property of the society, in whose museum they are exhibited.

On Tuesday, the last day on which the Anthropological department sat, Sir William Wilde was unavoidably absent, and the chair was occupied during the day successively by Sir John Lubbock, Colonel Lane Fox, and Sir Duncan Gibb. The proceedings commenced with Colonel Fox's report "On the Anthropological Notes and Queries for the Use of Travellers." It will be recollected by our members that this committee was originally appointed at the Brighton meeting, and that at Bradford it was re-appointed, with a grant of £50 towards the expense of publishing the work. Colonel Lane Fox laid before the Belfast meeting some advance copies of the neat little

volume which contains these instructions, of which he gave a succinct analysis. It is satisfactory to know that the committee has been re-appointed, with a grant of £20 to cover certain additional expenses which are likely to be incurred by a larger issue than was originally contemplated. We may fairly expect that this little volume will soon be widely distributed to our consular agents, naval officers, missionaries, and other travellers, from whom it seems likely that much useful information will thus be obtained on subjects which might otherwise escape observation.

A paper which had been read in the Geological section was fairly brought into our department by Mr. R. H. Tiddeman, relating as it did to the discoveries in the Settle Caves. As the human fibula, which formed the principal object of discussion in this communication, has already been brought before the Institute by our President, it is unnecessary to make further allusion to it; but it is gratifying to know that the work of the Settle Cave Exploration Committee will be continued, and that the Association has aided it by renewing the grant of £50. In connection with this subject it may be remarked that the committee for exploring Kent's Cavern was also re-appointed, and that a grant of £100 was voted for the continuation of their useful work.

One of the secretaries of the department, Mr. J. J. Murphy, offered "Some Remarks on Mr. McLennan's Theory as to Primitive Marriage." Whilst admitting that the institution of marriage might be traced back to the practice of bride-stealing, the author differed from Mr. McLennan in believing that the impulse to this theft arose, not from the scarcity of women consequent upon the practice of female infanticide—a practice which would tend to the extinction of the tribe who followed it—but partly from the desire of each man to possess a wife of his own, which in primitive times could only be the result of capture, and partly to an instinctive impulse to mix the race. The paternal authority introduced by marriage would give social cohesion to the tribe, and thus secure for it an ascendancy over neighbouring tribes, which would tend to the dissemination of its customs.

A paragraph had appeared in the local papers to the effect that a meeting would be convened to discuss the advisableness of establishing a Psychological department or sub-section, or at least a Psychological society in semi-official relation with the Association. This movement originated with one of our members, the Rev. Dr. McCann, of Glasgow, who had applied to the chairman of the Anthropological department for the use of our rooms in Queen's College for the purpose of holding the

meeting. As it was clearly beyond the power of our committee to grant this request, it was decided that the best way of giving publicity to the subject would be by reading a paper in our own department. Accordingly Dr. McCann brought forward a communication "On the Methods of a Complete Anthropology," in which he defined this science as the study of all the phenomena of man, and urged upon anthropologists the necessity of paying greater attention to mental science. Whilst admitting that psychological subjects enter to some extent into our programme, the author maintained that sufficient opportunity was not afforded for men of opposing schools of thought to discuss the points of difference between them. The subsequent discussion seemed to show that the general feeling of the meeting was against the establishment of any additional subsection, but that the Anthropological department, as at present constituted, was competent to receive and discuss all papers on scientific psychology, excluding, of course, theological controversy.

It is to be hoped that papers of solid merit on psychological subjects, treated scientifically, may in due time be received through the aid of our Psychological Committee; and that we may thus show that the Institute, at any rate, has not lost sight of this phase of our many-sided science.

Our former director, Mr. C. Staniland Wake, contributed a suggestive paper "On the Origin of the Moral Idea." Although it is true that among even the lowest savages such actions as theft, murder, and adultery are regarded as crimes, yet they are not considered as "immoral" in the sense in which that term is understood by us, since it is only under certain conditions that such actions meet with disapproval. According to the author, the fact that these actions are regarded as wrong may be traced to the idea of personal right arising from the activity of the instinct of self-preservation. Interference with acquired property would be resented as wrong, and the idea of right connected with such property might eventually be transferred to others possessing similar property. The "rights of the dead" were recognised by all primitive peoples, and the neglect of these rights would incur the displeasure of the inhabitants of the spirit-world. If it came to be supposed that theft, adultery, murder, and the like were displeasing to the spirits, these actions would soon be viewed as immoral. The author believed that the active virtues, such as benevolence, which would not appear until after the development of the negative virtues, might be traceable to the maternal instinct, and this in turn to the sexual instinct, which accompanies that of self-preservation in animals of even the lowest grade. The

union of these instincts, according to the author, formed the true basis of morality.

In a paper "On the Degeneracy of Man," the Rev. J. Edkins, of Peking, laid down the postulate that whilst civilisation tends to advance on continents it degenerates on islands, and, consequently, we may expect to find races inhabiting continents to be more highly civilised than those on islands at a great distance from the mainland. Assuming Asia to have been the birthplace of the human race, the writer sought to show that the inhabitants of Polynesia, America, and Africa were degraded Asiatics, whilst Europeans were developed Asiatics. Illustrations which the author believed lent support to his argument were drawn from various parts of the world, but especially from China; and his familiarity with this country, its people, and its literature, gave considerable value to his remarks on the history of Chinese civilisation.

Last on the list of papers was a note from Mr. Hyde Clarke "On the Phœnician Inscription of Brazil." Reasons were given for doubting the authenticity of this inscription from internal evidence. It seems most improbable that King Hiram should have despatched an expedition to America from Ezion-geber, on the Red Sea. A knowledge of the Atlantic and Pacific Oceans, Australia, and North and South America, might be found in the earliest stages of learning in Babylon, and was distinctly taught in the doctrine of the Four Worlds by the School of Pergamos. This knowledge lingered in traditions among the Greeks and Romans, and was accessible to the Phœnicians. It seemed, therefore, probable that Hiram would have sent his expedition from Tyre or from Spain, rather than from the Red Sea.

The preceding analyses of the papers read at Belfast, though brief, sufficiently indicate the general character of the proceedings. It is matter of congratulation to the Institute that the more important of the papers were contributed by our own members, and, indeed, it is from their exertions that the department must always gather its chief elements of strength. It is, therefore, to be hoped that a greater number of our members will seek to forward the interests of the department, and, consequently, of the science which it represents, by the contribution of suitable memoirs, and, if possible, by their personal attendance. But if the last meeting, labouring under the disadvantage of distance from the metropolis, was sufficiently supported to maintain its position and popularity, it may be fairly anticipated that a yet fuller measure of success will attend the Bristol meeting of 1875.

Mr. HYDE CLARKE read a Report on the Ethnological section of the Congress of Orientalists:

REPORT on the ANTHROPOLOGICAL SECTION of the INTERNATIONAL CONGRESS of ORIENTALISTS. By HYDE CLARKE, Delegate for the Anthropological Institute.

THE Congress of Orientalists, which was last year instituted at Paris, held its second meeting this autumn in London, and will have its third yearly meeting in St. Petersburg. The importance of the Association rendered it desirable that the Institute should be represented, and I acted on behalf of the Institute, with the sanction of the President, Professor Busk, and was supported by Mr. Brabrook, our Director, and Mr. Park Harrison, Member of the Council. In the desire to promote the objects of the Congress on the occasion of the meeting proposed to be held in the rooms of the Royal Society of Literature, an invitation to visit the collections of the Institute was addressed to the members, and a selection of Oriental skulls and other illustrative objects was arranged, chiefly under the direction of Mr. Park Harrison.

These measures, however, proved abortive in consequence of the want of ordinary organisation, which marked and marred the proceedings of the Congress. Thus, too, the Anthropological section proved a disappointment like all the others. Distinguished men were collected from all parts of the world, including many eminent members of this Institute, but the communication of their knowledge could not be obtained, nor was there any discussion. Although the Congress was, on paper, divided into six sections, yet, contrary to usage, each section held only one sitting, of which half the time or more was devoted to the address of the President, and the hour or three-quarters of an hour remaining was occupied by one speaker. Prof. Owen delivered a very valuable address on Egypt, the chief portions of which the members of this Institute had the advantage of hearing on the 9th of June, as well as of seeing the illustrations. As the members of allied scientific societies were not allowed in the customary way to sit on the committees of sections, no adequate preparation could be made for the section of Ethnology, and no defects could be remedied.

The result is the more to be regretted, as there was a good disposition to show hospitality to the members; the meetings were well attended, and the daily papers devoted long notices to the proceedings, so that an extent of popular interest was excited which might have been productive of much benefit. The number of subscribers, it is to be regretted, is so limited that the volume of Proceedings, to be published at some remote

date, is expected to be small, and will bear no comparison to the magnificent volume of 1873, produced by our French brethren, and to which they have the sagacity still to invite subscriptions.* By the narrowness of funds, another object of the Congress, in the permanent record of its proceedings, is frustrated. This will, to some extent, be remedied by the enterprise of our fellow-member, Mr. N. Trübner, who has already produced, as a part of the "Oriental Record," a very full account of the transactions.† He has likewise been active in arranging with Messrs. Maule, of Piccadilly, for the execution of a series of photographs of distinguished members of the Congress of Orientalists, which is already extensive, and includes several members of our Institute. By the help of Mr. Trübner's compact volume, I proceed to offer a few notes.

Prof. Oppert offered an explanation of his views on the Ethnology of the Medes. He is of opinion that the Medes were non-Aryan; that the language of the cuneiform called Accad is Median; and that the Persian names we have of Median kings are only Persian translations. "The two dynasties of Media and Persia were quite different in race and religion; the accession of Cyrus marks that of the Aryans and the Mazdeism" (Trübner, p. 7).

Our member, Sir Walter Elliot, presided over the section devoted to language in general, unscientifically named, by the Sanskrit sect of philologists, Turanian. Unwilling, like the other chiefs of sections, to absorb the small time allotted for the work of the section, Sir Walter delivered but few observations, reserving for the volume his view of the relation of the non-Aryan languages of the East.

The Rev. Isaac Taylor, in the Turanian section, gave a view of the relations of Etruscan and the Accad of Babylonia (p. 10). These were referred to by me in my paper, last session, "On the Early Culture of America," and the adoption of such view prepares the way for his retreat from the hypothesis of the Finnic classification of the Etruscans. It is well to observe that there are in Accad relations to Finnic. The failure of Dr. Corssen's attempt to make the Etruscan language Aryan will compel the philologists to pay more attention to the ethnological and mythological elements, and may result in modifying the influence of Aryan comparative mythology, establishing its antecedents as a development of prehistoric mythology.

Dr. Leitner read a paper on Dardistan (pp. 10-47). This is a subject which he had brought before the Institute last

* The subscription of ten shillings, for 1873, can still be paid to myself, as delegate.

† Trübner & Co., Ludgate Hill. Price 3s. 6d.

session. The Congress had drawn together a distinguished body of Chinese scholars, but with small result. Those eminent authorities, M. Leon de Rosny (p. 52), founder and last year's President of the Congress, and the Rev. Joseph Edkins (p. 9), entered their names to deal with the important subject of the origin of Chinese writing, on which short papers are published by them (p. 120). The discussion of this matter would have thrown light on the general origin of writing in Egypt, Babylonia, and China, all of which have features in common.

A casual conversation on the origin of the tones in Chinese abruptly closed. When it is observed that in Egyptian, some Caucasian, and other languages, there are also cases of several syllables being expressed by one idea, it is seen that in Caucasia differentiation is obtained by minute distinctions of vowels. According to Schiefner, the tones in Chinese serve the same purpose, even if they be not closely related in sound, while they have connections in gesture, which are derived from the branch of gesture-language dealt with by Mr. Tylor.

In the same Turanian section the Rev. Samuel Beal gave a paper on "Buddhism" (p. 12), and Professor Stenzler (p. 22) on "Expiation." The way in which the various doctrines, particularly that of Nirvana, are modified by the various nationalities, and which likewise received no full discussion, is an important phenomenon in comparative mythology, equivalent to what takes place with Christianity and Islam in a direct ethnological relationship.

In the Semitic section a paper of much interest and research was read by Brugsch Bey on the "Lake passed by the Israelites in their Exodus" (p. 28). In a work about to appear on Egyptian topographical names, and which includes 1,000, no less than 300 have double names. These are generally supposed to be Semitic, and that the shepherd kings were Semitic. Looking to the fact that Thebes and other names are not Semitic, but, as I have shown, Sumerian, it is likely that further confirmation will be obtained of the arguments of Professor Owen, delivered before the Institute, and renewed before the Congress, that there was in Lower Egypt a large and influential non-Egyptian population of Turanian character.

Mr. Grant Duff, M.P., presided over the Archæological section, and read an inaugural essay (p. 36) on the published Government reports.

In this section I was allowed to read a note on the "Connection of the Ancient River-Names of India with those of Etruria and Peru" (p. 39), in which I added some observations to those made before the Institute last session.

The Ethnological section was the last and unluckiest, being

snuffed out by the general meeting. Here (p. 42) Professor Owen read his discourse.

Dr. Forbes Watson had a short time for describing his proposition for the establishment of an Indian Institute in connection with the India Library and Museum (p. 46), which, among other subjects, will practically deal with Natural History, Ethnography, Sociology, Mythology, &c. This important proposal was well received.

Mr. Frederick Drew read a short paper on the "Castes of the Dards" (p. 53).

The special anthropological paper, that of Dr. Dobson, on the interesting topic of the "Andamans and Andamanese," was not read, but has since been transferred to this Institute.

The following report was taken as read:—

REPORT on the STOCKHOLM MEETING of the INTERNATIONAL CONGRESS of ANTHROPOLOGY and PREHISTORIC ARCHÆOLOGY.
By H. H. HOWORTH.

THE International Congress of Anthropology and Archæology, which was held last August at Stockholm, was in every way a remarkable success; successful in attracting a very numerous body of distinguished men from various parts of Europe and America, successful in the very valuable papers that were read and the discussions which followed, and more especially successful in the admirable arrangements that were made for the entertainment and comfort of the visitors. The credit for these arrangements was largely due to the indefatigable zeal and energy of M. Hans Hildebrand, who is so widely known as an archæologist, and of his companion, M. Montelius, whose works on the "Prehistoric Antiquities of Sweden" are equally admirable for their accuracy and the beauty of their illustrations.

Sweden is proverbial for its hospitality, and the influx of those who were interested in the stone- and bronze-folk, so dear to every Scandinavian soul, seems to have warmed even this proverbial hospitality into unwonted glow. The weather was very fine, and therefore the city, which is so often styled the Northern Venice, looked most charming. We were able to explore its environs with ease in the little gondola-like steamers which are the omnibuses of the Malar Lake, the lake of 1,200 islands.

The meetings were held in the old House of Peers. That stately body is now disestablished as a power in the State, but it still retains its palace for grand coremonials. The grand

hall in which the meetings were held has its walls almost covered with small square escutcheons, each with the arms of some peer who has sat there, like those in the stalls at Windsor. Other rooms in the building were used for exhibiting, in table cases, the rare prehistoric objects that were brought by various members, for plans, &c. Among the latter the most notable were some shown by the Russian archaeologists, showing the distribution of prehistoric remains of various kinds in Finland and in Northern Russia, and also a most interesting series of drawings and lithographs of objects of the bronze and iron age found in various parts of European Russia, which are being published by the Russian Archaeological Society, that holds meetings in various parts of the Empire. This year the meeting-place is Kief.

The inaugural meeting of the Congress was held on Friday, the 7th of August, at 2 p.m., under the presidency of Count Henning Hamilton, a distinguished Swedish diplomatist and man of letters, and a scion of the Scotch house of Hamilton, which has so largely recruited the aristocracy of Sweden. The business of this meeting was to elect the council, and to hear an inaugural address from the president. It is the rule for the vice-presidents to take the chair each day in order; and as they are chosen as representative men of different countries, this makes the chair a very international institution. The past presidents are, *ex officio*, also vice-presidents. M. Capellini, Professor of Geology at Bologna, to whose initiation the Congress owed its birth, took the chair, and, after a few remarks, vacated it to the president-elect, who bade the Congress welcome, and in a few appropriate phrases told us what had been done to entertain us. The council was then elected, and consisted of the following names:—Vice-Presidents, MM. Hildebrand, senior, Nilsson, De Quatrefages, Franks, Virchow, Dupont, Leemans, and Bogdanow; General Secretary, M. Hans Hildebrand; other Secretaries, MM. Montelius, Retzius, Chantre, Cazalis de Fondouce; Assistant-secretaries, MM. Stolpe and Landberg; Council, MM. A. Bertrand, Berthelot, Evans, Von Quast, Schaffhausen, Pigorini, Van Beneden, Engelhardt, Rygh, Von Duben, Aspelin, Lerch, Römer, and Whitney.

In the evening there was an entertainment at the pleasure-gardens in the outskirts of Stockholm, called Hasel Backen. This entertainment was provided by the municipality.

The real business of the Congress commenced on Saturday morning. The papers were read and speeches made from a tribune, and the language used was French. The first paper was by M. Torell, the superintendent of the Geological Survey of Sweden, and was supplemented by another by Baron Kurck.

These papers added the imprimatur of great authorities to the notion already current that there is no evidence of the existence of man in Sweden contemporaneously with the glacial mammals. The former shattered to pieces the evidence adduced by Sir Charles Lyell for the existence of a hut of the glacial period at Sodertelga, in Sweden. He showed the evidence had been somewhat misconstrued by Sir Charles, and that the facts which he took to prove upheaval and submergence were really the result of the slipping of a mass of talus. The general result of the discussion was that Sweden and Norway were at this epoch untenable, on account of the vast ice-sheet that probably covered them. I believe Mr. Evans and Mr. Franks, our two best authorities on the subject, are agreed that in Britain there is no evidence of palæolithic man having lived further north than Leicester.

Baron Kurch, who has made many researches on the early archaeology of Southern Scania, exhibited specimens of the earliest forms he had found, which corresponded to those of the Danish kitchen-middens.

M. Worsaae somewhat diverged from the question at issue in introducing the further question of whether there were not two divisions of the neolithic age in Scandinavia, one characterised by chipped, and the other by polished objects. He argued that there were, and seemed to infer that the polished implements were imported western forms, and that the art of making them travelled by way of Jutland.

Mr. Evans combatted this view most successfully, and showed that both forms are found together, and that chipped flints occur even later than polished ones. It is quite clear that the *raison d'être* of the two forms is the quality of the material. While flint and quartzite are readily chipped into form, arenaceous and other stones cannot be chipped, and must be polished, and this accounts for the presence of chipped flints in such abundance in Scania and Denmark, where flint is abundant, and their replacement further north by polished implements made from the basaltic and other indigenous stones. The reporter drew a parallel between the two forms and those found in New Zealand, which illustrate another reason for their separate existence. There also we have two stone ages—one of rude chipped implements, the other of polished jade ones. The former are found in the oldest ovens in connection with the bones of extinct birds, and were probably used by the race which preceded the Maories. When the latter arrived they had with them peculiar weapons made of bone, wood, &c. These they copied on their arrival in the beautiful material they found there, namely, the New Zealand jade, and to give

them the same external look they had to polish them. It is well known that there are found in Sweden a series of most beautiful stone axes, rare elsewhere, of a long pickaxe form, with beautifully worked sockets, ridges, and holes. These are classed by the Swedes as of the bronze age. A paper was read arguing that their finish and the construction of the holes was incompatible with their having been made with stone tools, while their forms were clearly imitations of metallic ones. This introduced the general question as to the age of the pierced stone axes, which are found so often sporadically, and so seldom with objects that might fix their relative age. Mr. Evans repeated his theory that the holes were made with hollow bones or horns and sand. Mr. Dixon suggests that they were bored with hollow reeds and sand. It is clear that many of them must have been made with a cylindrical hollow tube of some kind, either of metal, bone, or reed, for many are still found in Sweden with the holes partially occupied by little nipples, analogous to the stones taken out of boring tubes in digging mines.

After this discussion we had a paper by M. Zawiska on the finding of palæolithic objects, with mammoth and other remains, in Poland.

The meeting rose at half-past twelve, and recommenced at half-past two. The first paper was a geological one by M. Hamy, on the "Quaternary Deposits found in the Valleys of the Seine and the Somme;" after which we had a very interesting discussion on the sources whence the ancients derived their supply of amber. M. Stolpe enumerated the various sites where amber is found, and said it was generally distributed in the tertiary deposits of Poland, Galicia, and Germany—in greatest abundance on the shores of Pomerania, and also on the coasts of Friesland. It is only lately that attention has been much called to this latter district, and it is now pretty well settled that there were two distinct northern sources and two corresponding trade routes for the precious gum. One of these trade routes connected the Mediterranean with the shores of Pomerania, the other drew its supplies from the western shores of Jutland and the line of coast now forming the Friesic Islands, as far south as the Zuyder Zee; and M. Virchow told me that in a recent memoir that has appeared in Germany it is argued, with great probability, that this was the country of the Guttones, mentioned by Pytheas, and not the district of East Prussia, which has hitherto claimed that distinction. M. Wiberg threw much light on the direction of these routes, one by way of Jutland and the Elbe, the other by way of the Oder. M. Capellini exhibited a large piece of

amber which had recently been found near Bologna. It was of an opalescent colour. He gave a general conspectus of authorities upon the several discoveries of amber that have been made at various times in this district, and also of the more important sources in Sicily, and argued that the Etruscans would hardly go to the Baltic for a material which was to be had so much nearer home, and that they probably derived a large portion at all events of their supply from local sources. This was not the general opinion of the meeting, however; the direct statements of Pytheas, Tacitus, and Procopius, as to the sources of amber in their day having been the Baltic, were quoted by the reporter. Procopius described the route followed by the envoys of Theodoric, who were sent to bring him some of the precious fossil gum, and who returned with a large piece, as having been through Pannonia. It is well known also that the trade routes from the Prussian coast to Rhætia and to the Danube are strewn with objects of bronze of a peculiar fabric, which has been, with great probability, assigned to Etruscan influences. The coins made in imitation of those of Macedon, on which Mr. Evans has written so ably, are, I was told, found in Pomerania, but not in Jutland. Baltic shells have been found, I believe, in graves in Southern Germany, and it is highly probable that the Etruscans had an extensive trade with Hallstadt for salt. Lastly, as a proof that the knowledge of amber came from the north, it may be cited that it is exceedingly common in the northern graves of the stone age, while in Italy it is not known until the iron age. The quantity of amber in the later age of metals in the north is very much less than in the older graves, which, it is argued, is due to the fact that exportation had then commenced, and rendered what was once common a rare article, as in the corresponding case of gold in Peru before and after the Spanish conquest. Amber has been lately found in Transylvania, and M. Römer exhibited a piece from there. Like bronze, amber was probably exported in the rude state, for in England, according to Mr. Evans, objects made of amber have been found imitating native objects made of jet.

Sunday was devoted to visiting the Museum. The National Museum is contained in a very handsome and commodious new building, of Palladian architecture, which forms a striking object from the lake. It is of two storeys, and very commodious and convenient. The various collections were explained by the ever-courteous curators. M. Hildebrand, senior, showed the coins. The collection, as is well known, is unsurpassed for its Anglo-Saxon coins, a catalogue of which was published by the veteran archaeologist just named. They were the result of

the plundering expeditions of the Danes, and far surpass in numbers, and probably in variety, those in our own collections. Large hoards are constantly being found in Sweden. In the Prehistoric Department the great strength of the Swedish collections is in the stone objects, and those of the so-called Viking period. Of the former the number is very large, the greater portion having been found in Scania and the southern provinces. They naturally resemble the Danish types, only that the polished pierced hammers, of elaborate make, to which I have already referred as probably imitations of metallic ones, are much more common here. In objects of the bronze age the Museum is comparatively weak when compared with the Danish and Irish collections; nor did I note anything very peculiar, except the wheels and framework of one of those curious sacrificial (?) bowls which have been found in Etruria, in Styria, and in Prussia, and which are all probably of Etruscan origin. The iron objects are richer. They are classed by the northern antiquaries in three periods—the first iron age reaching to about the 5th century, the second to the 9th, and the third the so-called Viking period. Of the first are several objects, showing distinct Roman influence, a large bowl with an inscription, and various statuettes. It is curious how the swords of this period have been twisted and bent, and even rolled up, showing of what bad temper they were made. The great mass of material for studying this epoch is, of course, that discovered by Engelhardt in Schleswig. He described to me the extraordinary skill with which the handles of the swords were decorated with patterns in which silver wire was hammered into meandering and other lines, probably chiselled out of the iron. This inlaying of metals, I suggested, was much practised in the later Byzantine period, and employed in decorating the great bronze gates which were made at Constantinople, such as those at Monte Casino, &c. The second iron period is distinguished chiefly by an abundance of Byzantine coins, and of imitations, some of them very large and handsome, of Byzantine bracteates. The goldsmiths' work of the two earlier iron ages is exquisite. There are three grand collars, or rather gorgets, here, made of a number of curved gold rods fastened together by delicately woven chain-work. This peculiar chain-work, which I had not seen elsewhere, is also used for rings, several here being formed of three snakes coiled side by side, with the interspaces filled with the same delicate work. It seems to be of Byzantine origin, and deserves a special study. One of the gorgets is well figured in M. Montelius' work on the Museum. The swords of the second iron period are distinguished by having their surfaces elaborately damascened in

various patterns. Very many of these damascened swords have been found in Denmark, and some might well be spared thence for our own national collection, whose indefatigable curator it ought to be our first duty on every occasion to assist. This damascene work, M. Engelhardt thinks, is Eastern. It is certainly very curious, and raises some interesting questions about the iron metallurgy of that period. These swords seem to be very locally distributed, both in space and time. They are not found at all, I believe, in the west of Europe, nor are they found either in the Viking period. Objects of this last period are very well represented here. It is distinguished by an abundance of silver objects (so rare in the earlier epochs), and by a corresponding dearth of gold; by an abundance of Anglo-Saxon and Cufic coins; great numbers of armlets and bangles of twisted silver wire, &c., all of clearly Eastern fabric, and of silver chains with pendants. Several of these latter are in the shape of Thor's hammer, some decorated in beautiful filagree; others have Byzantine crosses suspended from them. There are also numerous round brooches of silver, covered with filagree ornaments, that are very distinctly Eastern. Of the bronze objects peculiar to Norse times there is an unrivalled collection here. Thus there is a whole case full of those oval brooches found generally in pairs, of which a few have occurred in Britain. Some of those here are very elaborately made, with bosses and animals' heads projecting from them. Other types of the same epoch were confined apparently to the Island of Gothland. These are made in the shape of boars' heads, others in the shape of oval snuffboxes, pierced and knobbed. The Swedes are so rich in both classes that a few specimens might assuredly be spared for our British Museum. The pins in these bronze brooches were made of iron. From the Isle of Gothland also came three immense specimens of the better known fibula type. These are about half a foot long, decorated with interlaced dragons and snakes, and having moveable discs fastened to them. It is hard to conjecture the use of these enormous brooches. Alas! I was forgetting what our descendants will say of some of the monstrous ornaments the vanity of our own age has invented. I was forgetting how vanity smiles at inconvenience. One of these large fibulæ is also figured by M. Montelius.

The Mediæval Department is no part of my business at present, but I cannot forbear quoting a very precious object it contains, which has apparently been overlooked by writers on the history of enamels. This is an episcopal mitre, decorated with a great number of those incunabulæ of collectors, namely, Byzantine cloisonné enamels. Mr. Franks, I know, looks upon

this mitre as a perfect mine of value. So will others who remember that while in all our English collections we possibly have ten of these enamels, this same mitre has probably fifty upon it.

On Monday, at ten, the Congress resumed its sittings, under the presidency of M. Desor. The first question discussed was whether the stone remains of Sweden showed the presence there of two races or one. M. Montelius read an elaborate conspectus of the Swedish graves of the stone age. These he divided into four classes—dolmens, chambered tombs, great stone circles, and tumuli. There is nothing to show, however, that these four classes of tombs correspond to any racial distinctions. It would seem, from the tombs of this age being found almost exclusively in Scania and Southern Sweden, and along the sea-board and rivers, that the folk who constructed them came from the south, where similar tombs are so frequent. M. v. Quast went further, and said they came from the south-west; for, strangely, these tombs are not found at all, or if found, they are very exceptional, in the country east of the Elbe. In the north of Sweden and Norway we come upon stone objects of an entirely different facies—namely, those found in the Lap graves. M. Rygh gave an interesting account of these, which was supplemented by the remarks of a very enthusiastic and successful explorer of Norwegian graves, M. Lorange, who has charge of the collections at Bergen. The Laps seem to have used stone objects until a century ago; but all the remains that have been found in their graves are entirely different to those of the stone-folk proper. The latter are not found further north than sixty-five degrees, where the former practically commence (a few only having been found further north), and continue to the North Cape. These Lap remains are classed by the northern antiquaries as belonging to the Arctic type. They consist of harpoons made of slate, of an entirely different form to those of the stone people, and also of numerous bone objects of a peculiar form. It were well if specimens, or at least casts, could be obtained for our collections. These discoveries make very probable, on archæological grounds, a theory which has been advanced elsewhere on other grounds, that the Laps are not the remnant of the aboriginal population of Europe which was driven into the extreme north by other invaders, but are a comparatively recent arrival. M. Worsaae urged this view, and argued that they came from Russia in recent times.

The reporter drew attention to the existence of a comparatively recent race of dolmen builders in the Caucasus, namely, the Abkhazians, and suggested that they might prove to be

the representatives and descendants of the stone-folk proper. During the discussion the King entered the room, and was entertained for the remainder of the sitting by a renewal of the old combat between M. Quatrefages and M. Virchow, which has become classical. The German professor did not fail to express his dissatisfaction with the results of craniometry in classifying races. Parenthetically it was observed that remains of the reindeer have not been found in the Danish kitchen-middens, although they have in those of Skane. This is interesting to English ethnologists, who will remember that reindeer have been found in the Pictish burghs in Scotland, which are doubtless more recent than the kitchen-middens. A suggestive query by M. Bertrand, as to whether there was any evidence that the reindeer had been domesticated by the stone people, received no answer.

In the afternoon the discussion was somewhat discursive. M. Mortillet argued that dolmens were not to be taken as distinctive of race, but as modifications of cave sepulture that arose naturally in different localities, without any common ancestor. M. Hamy said, in confirmation of this view, that he had recently, near Paris, discovered dolmens whose contents were similar to those of the reindeer people, showing a continuity between the palæolithic and neolithic folks, and that there was no break. M. Desor, on the other hand, said, and most justly, that the introduction of domesticated animals was a complete revolution, and enables us to separate the two epochs completely. M. Capellini communicated an account of a primitive manufactory of stone objects which had been discovered in the district of Bologna. Until recently it had been supposed that the objects of stone found in Italy had been imported, but this proved them to have been home-made. M. Belucci mentioned the discovery of amber in a deposit of the bronze age in Italy. Previously it was supposed that it was introduced there by the iron people, and I am disposed to doubt this discovery. As yet I know of no evidence that there ever was a bronze age, properly so-called, in Italy. In France M. de Baye has found amber in the neolithic caves of La Marne, and M. Cazalis de Fondouce in a megalithic structure of the transition period between stone and bronze; M. Chantre in many deposits of the bronze and iron age in the Hautes Alpes and the Alps of Savoy and Dauphiny. Mr. Franks referred to amber having been found in Roumania; while M. Landberg, who has been entrusted with a scientific commission in Syria, mentioned having found it in some very old graves in the Baherein Islands, off the Syrian coast, in graves of probably Canaanitish age.

Reverting once more to the dolmens, Mr. Evans remarked

that their distribution depends a good deal on there being the stones necessary to make them of at hand; but this surely will not explain their remarkable absence from Finland, Russia, and, indeed, all continental Europe east of the Elbe, except Scandinavia. This area is particularly strewn with boulders, and there can be small doubt that their absence there is due to the absence from that particular area of the race who built such structures.

M. Schaffhausen showed a leaden hammer found at Neuss, near Cologne. This he described as a Thor's hammer. It was probably a model. Celts made of lead, and considered to have been used as models, have been found in Brittany.

Tuesday was a red-letter day in the meetings of the Congress. An excursion had been organised to Upsala to see the sights there, and especially to see the interior of one of the three great mounds of the kings, which are so familiar to archæologists from the frontispiece in Sir John Lubbock's "Prehistoric Times." As is well known, these mounds are situated close to the site of old Upsala, now a mere hamlet, with a very ancient church close by. The mounds are situated in a row on the crest of a range of sand-hills, so that their real is not so great as their apparent height, although this is very large. M. Hildebrand, in telling us their history, said the names of Odin, Frey, and Thor had only been applied to them as late as the last century, and it would seem that it was Rudbeck who thus named them. A wedge had been cut out of the western mound so as to expose its interior very completely. First a hard clay platform seems to have been made, in the centre of which was placed the urn with the *débris* of the cremation of the body. Unlike many of the Norse graves examined in Russia, the urn was put on the ground, and a hole was not dug to contain it. Over the urn was piled a cairn of stones, and over this a mound of sand and gravel; this again was covered with a deep layer of clay of a fine, even texture, and probably worked before it was placed there. This acted as a binder to keep the lower layer together. Over the whole was a thickness of two or three feet of humus, sodded over. Some of the contents of the cairn were exhibited on a table in the excavation, and consisted of a broken vase of unbaked clay and a quantity of bones, ashes, &c. A few other objects that had escaped the fire were at the Museum. *Inter alia* there were found two small Roman cammei of a debased period, probably of the fourth century, and some fragments of the peculiar cloisonné work inlaid with garnets or cornelians, which is found in early Merovingian and Anglo-Saxon graves. The remains answered in date to those found in the eastern mound, which had been

opened some years before. They all three probably date from the fourth century, and this is about the date when many suppose that the Asirs, whose metropolitan city was Upsala, began to lead the colonies of German tribes into various parts of Europe. They probably are the burial mounds of the early Yngling race of kings. In the graveyard of the adjoining church are two stones with Runic inscriptions on them. Having seen the sights at Gamla Upsala, we returned to the more modern city, where we were met by a large number of students ranged under the banners of their several nations, and were escorted through the town to the university, where we had a luncheon out of doors, and a number of addresses were made from a tribune in front of the building. These complimentary speeches were made by those representing the university and by representatives of the strangers. Mr. Franks spoke for England and was much cheered. We were all, naturally, taken to see the Codex Argenteus of Ulphilas, that primæval monument and foundation-stone of Teutonic philology. We were then shown the cathedral, where are many mediæval monuments of historic interest; most of them, however, of debased and rococo style. We finished by looking at a small local museum of antiquities, which, however, does not contain anything not better represented at Stockholm.

On Wednesday a discussion was again raised, upon the beautifully-finished stone axes I have before referred to, by M. Soldi, who argued at some length that they were imitations of bronze axes, and belonged to the transition period when bronze was still rare, and it was therefore economical to imitate it in stone. This view was controverted by M. Hildebrand, jun., who said they had never been found with objects of the bronze age, but he admitted that they had not been found in tombs of the stone age in Sweden, although they had in Denmark. Mr. Franks said that the discoveries in the Swiss lakes showed that pierced axes were certainly used there in the polished stone age. The evidence in England, he said, went to show that they were used down to the bronze age. It was clear that in England they could not have been copied from pierced bronze axes, which are not known there. The idea of Dr. Klemm, that the holes in the pierced axes were made by a bronze ferule, he said was quite untenable. It seems to me that the question of the ordinary pierced stone hammer or axe stands entirely on a different basis to that of the very elaborately-finished and boat-shaped Swedish pierced hammers, which last certainly have every appearance of having been copied from metal originals. M. Desor was disposed to agree in this view; but he said he had never seen a bronze hammer corresponding to this type of stone hammer from which the latter could have been imitated.

M. Hildebrand then took up the subject of the source whence the bronze culture reached the north. It had been suggested that it came from Pannonia, *i.e.* Hungary; but if so, he argued that we ought to find earlier and more simple forms in the latter country, while, as a fact, the swords found in Hungary were of a larger and more mature form than the swords and daggers found in the north. The Hungarian fibulæ, on the contrary, seemed to be of an earlier form, and he concluded that the bronze culture had developed independently in the two areas. Mr. Evans remarked that in England the bronze daggers also seem to have preceded the swords, the former only being found in graves.

M. Lorange then read a paper "On the Bronze Age in Norway." It had formerly been denied that there had been a bronze epoch there. Near Frederickshald he had found a great number of cairns enclosing granite cists of this age. They were generally found on mountains overlooking a lake, or the sea. Most of them had been rifled of their contents, but he had recently found two intact, in one of which was a bronze sword, and in the other a bronze dagger. Two daggers from a third of these graves had reached the Christiania Museum. These four objects were like those classed as of the second bronze age in Denmark and Sweden. Near Stavanger, and as far as Bergen, other graves of apparently the same date occurred, but the cairns in these cases were covered with earth. Some of them contained skeletons, others only burnt bones. Upon some had been found splendid arms, similar to those found elsewhere in Scandinavia, and classed there as of the first bronze age. He had lately found two tumuli near Trondjem which belonged to the same age; but objects in bronze and gold, characterised by the features of this first bronze epoch, had been found sporadically in various parts of Norway. Near Christiania and Bergen there had been found, ten years before, some dozen rock sculptures of this same age; others had recently been found near Bergen, at Trondjem, and about 200 near Frederickshald. They were like those in Sweden which M. Hildebrand, senior, had assigned to the bronze age. The Baron Kurch argued, from the carvings found in Sweden, that the men of this period did not practise agriculture, and that they did not have domestic animals, except the horse. The representation of boats on these rocks pointed to the bronze-folk having been a seafaring people. M. Montelius then called attention to the rock sculptures at Bohuslan, which the elder Hildebrand had shown many years before, from the shapes of the swords carved on them, belonged to the bronze age. The absence of runes upon them also pointed to their being earlier than the iron age. M. Bruzelius mentioned

similar sculptures as existing in Scania, which he compared to those on the monuments found at Kivik and Vilfara. He believed they represented incidents of war.

M. Desor then spoke of stones with cup markings which had been found in Switzerland and also in Sweden, and asked if they did not belong to the same age as the others. M. Soldi remarked that the rock sculptures could only have been made with metal tools, and that it had been proved that the intaglio-like Egyptian hieroglyphs had been cut with iron chisels. M. Hildebrand, senior, reported the recent discovery in the province of Norland of similar rock sculptures to those found in South Sweden. His son said that the stones with cup markings existed in large numbers in Sweden; that it was difficult to fix their age, for even the present Swedish peasantry have some kind of veneration for them, and make offerings in them; and again, an Icelandic saga mentions such a cup-marked stone as existing in Iceland, where it could only have been carved by Norsemen. This is a very interesting fact for the students of our own cup-marked stones, which are chiefly found in Norse-infested districts, and may, therefore, not be so ancient as is sometimes argued.

Returning to the question raised by the Baron Kurch, M. Engelhardt showed that at the close of the stone age in Denmark the pig, cow, sheep, and goat were known. He also mentioned that in Denmark there were two examples known of carvings on dolmens as in Sweden. These consisted of wheels and ships.

As a proof of Etruscan influence in the countries of the Baltic, Virchow quoted the recent discovery of a bronze cist, like those of the Certosa at Bologna, in Posen. Mr. Evans remarked that these cists were made of bronze plates, which had probably been either rolled or hammered out, and were not cast. M. Worsaae said none of these objects (*i.e.* objects of Etruscan origin) had been found in Denmark. They seemed to be of the end of the bronze age. He combatted the notion advanced by Virchow, and also in a communication of Lindenschmidt's, that the bronze art came from the south. The latter author had gone so far as to say there was no really indigenous art in Scandinavia till the tenth or eleventh century. The reporter argued that this question of the origin of the bronze culture was bound up with the sources whence the ancients derived their tin; that the supply from Cornwall was very limited in early times, while that from Spain was enormous, and probably supplied the west of Europe and the Mediterranean border-land, while Central Europe, Scandinavia, and perhaps Etruria, were more probably supplied from the mines of Bohemia and Saxony—sites which

had been much neglected in the discussion on the sources of tin among the ancients.

M. Capellini and M. Desor communicated notices, at the end of the morning sitting, of the exploration of certain very early cemeteries which have been recently discovered in Italy, and date from the very commencement of Etruscan influence, if not from an even earlier date. They are situated at Villanova, Gola-secca, and Ronzano. These early graves apparently belong to the early iron age (the bronze age having as yet not been traced in Italy). Among the things found in them were some very interesting ornaments of horse trappings, showing at how early a date, relatively, the horse was employed south of the Alps.

In the afternoon M. Engelhardt described the recent find in Denmark of a series of large gold vases, with handles terminating in snakes' heads. These are ornamented with concentric rings and punched ornaments. They are evidently hammered, and of a most interesting type. A good number of them have been found, and are now in the Copenhagen Museum. They are large cups, holding a quart or more, and shaped like some of the more elaborately finished funereal earthen jars found in graves of the bronze age in Ireland. M. Engelhardt argued that they were not of native manufacture, but imported. They are so curious and interesting that it is a pity we have not electrotype copies of them in London.

This was followed by a paper by Mr. Evans "On the well-known Stock-in-Trade of an Ancient Celt Moulder," which he added to his collection some time ago. This consists of raw bronze, of moulds, of undressed celts, &c. Mr. Evans has shown that, after they were moulded, the celts were tempered by hammering, and has also explained the way in which they were moulded, the original model having been made in lead. Mr. Franks then described some celts from Cyprus. These, I believe, came from General Cesnola's collections; four of them have been analysed, and of these three were of copper, more or less pure, and one of bronze. An object recently found in the great pyramid showed on analysis that it was made with copper mixed with a little iron. This is curious, for I have been told that in India a little iron was used to give toughness to bronze. Mr. Franks also exhibited some very large celts of the simplest type from India. These had also proved to be of copper. A fine collection of these Indian celts has been added to the national collection through the untiring energy of the ever-active curator of the Christy collection.

M. Pigorini reported that his Government had lately bought one of the terramaras in the province of Parma, named Caserolda,

which he said belonged to the early bronze age (?). This is to be preserved as a national monument—surely an example to our Philistine England in these matters.

M. Nilsson argued that the Cyprian axes were of Phœnician origin; while M. Landberg, who had assisted at the excavations in that island, said the art of the island was Greco-Phœnician, and not Phœnician pure. He said, further, that among the Semitic peoples bronze had always been preferred to iron, and was so still. He said that it was very important that some researches should be made upon Phœnician influence in the Euxine and in Southern Russia, where some curious riddles might perhaps receive an answer. We then had a communication from M. Aspelin on the "Stone Age in Finland and Esthonia." In regard to that age he divided Finland into three districts: Finland proper and Carelia, west of Lake Brega, Eastern Finland, and Esthonia. These three provinces were distinguished by peculiar idiosyncrasies in their remains, both in the shape of the implements and in the stones from which they were made.

M. Worsaae was confirmed by the Russian archæologist, M. Lerch, in saying that the bronze objects of Siberia were quite unconnected with those of Scandinavia; and this is confirmed further by the few specimens that have reached England, such as those Mr. Franks recently bought for the British Museum. M. the Count De Saporta reported the discovery of impressions of *Ficus carica* in the quaternary tufas of Moret and the Seine valley, showing a considerable change of climate, since the presence of this plant argued a much more humid and uniform temperature in Europe than at present prevails.

On Thursday the Congress had an excursion to Biorko. Birca was a well-known early Swedish mart. It was there that Anskarius, the great apostle of Sweden, landed in the ninth century; but, very strangely, about the eleventh or twelfth century the town seems to have been entirely abandoned, and its site was lost, and has been the subject of much controversy. It is only recently that an engineer, in making some excavations at Biorko (i.e. Birch Island), one of the beautiful islands of the Malar Lake, found an immense cemetery, and also the site of an old city; the former was covered with forest, the latter was in a low, flat piece of ground, locally known, from its colour, as the "Black Ground." The extent of this site, the name of the island, and the character of the remains, show most clearly that it was here that ancient Birca was situated. It is now being excavated with great care by M. Stolpe, and it needs no rhetoric to show how very interesting such a site must be for those who are studying the remains of the Norse period. The remains.

found are all, so far as I could hear, of that period—Anglo-Saxon and Cufic coins, bone combs, bronze brooches of elliptical form, masses of broken silver chains, glass beads, &c., &c., together with an immense number of bones, the refuse of the Norse kitchens. Mixed with these was much charcoal, but, strangely enough, no Runic inscriptions have yet been found there. Among the foreign objects there were some that might be traced to Gothland and Skane, mussel-shells from the west coast of Sweden, and cowries from the far east. The principal wild animals of which remains have been found are lynxes, wolves, bears, foxes, beavers, squirrels, hares, elks, reindeer, brown rats, and seals. Among the birds there were capercaillie and storks, while there were some dozen kinds of fish.

M. Stolpe is publishing an elaborate account of his diggings, which will no doubt throw much light on Norse manners. Biorko may, in fact, be considered as the boreal Pompeii, in which is buried the material for the social history of Northern Europe from the eighth to the tenth century; and it is to be hoped that the discoveries made there will be rendered more generally accessible by being described in some more "international" language than Swedish. After leaving Biorko the Congress went to the mediæval Castle of Gripsholm, a most interesting royal residence, where it was handsomely entertained, and then returned once more to Stockholm.

The meeting on Friday, the 14th of August, commenced with some remarks by M. Hagemans in support of those made on Wednesday by Count De Saporta. He mentioned the recent discovery of the trunk of a wild vine, namely, that of the *Vitis lambrusca*, at a great depth, with an urn of rude clay. The vine no longer thrives in this part of Belgium. He mentioned that megalithic remains were common in the district of Luxemburg, while mound burials with urns abounded in Belgium proper, there being a distinct difference in these respects between the Walloon country and that of the Flemings. He also said that amber did not occur in Belgium before the Frank period. M. Chantre, the very able French archæologist, then described the bronze remains of the Rhone valley. These he divided into two sections. The earlier, comprising chiefly so-called "buried treasures," consisted mainly of new and unused objects, and were found in the neighbourhood of the Alps—he considered they showed that the art was imported from Italy; the second class comprising remains such as are found on the sites of bronze foundries—such as those found in the pile-dwellings of the Lake of Burget, and numerous foundries in the valleys of the Rhone, Isère, and Jura. M. Bertrand admitted the legitimacy of the distinctions raised by M. Chantre, but objected to

their being raised into differentiae of distinct ages. M. Chantre's second bronze age was confounded in France with the age of iron. He doubted the existence of any age specially distinguished by the use of bronze in France, and argued at considerable length in favour of revising the classification of the northern antiquaries, as unsuited to any but very local archaeological inquiries. M. Hildebrand contended that in Scandinavia there was unmistakeable evidence of two bronze ages and of a period of transition. Mr. Evans also objected to the phrase "two bronze ages," as if there was a want of continuity between the two, whereas there was not, and he preferred to speak of the early, middle, and late bronze age. M. Worsaae, in reply to M. Bertrand, said it would be curious indeed if a bronze age should be proved to have existed in England, Scandinavia, and Italy, and not in France. It is hardly twenty years since a stone age was known in France, and it would probably be found that future researches would prove the existence there of a bronze age. He believed that the bronze culture came from Asia Minor into Greece and Hungary, whence it spread over Europe, travelling by one route through Italy into Gaul and Britain, and by the other into Germany and Scandinavia. He said further that the second bronze age in Scandinavia was well marked. The objects which marked it resembled bronze objects found in France, and he believed that it was contemporary with an iron age elsewhere; the use of bronze having survived to a later date in the north, whence, as we know, it was only displaced by iron about the time of the Christian era.

M. Perrin mentioned the great number of bronze objects he had found in the Lake of Burget, among them moulds of stone and clay. He said they proved the existence of a vigorous bronze culture in the Rhone valley, and also supported M. Chantre's division of the epoch into two. He said the fragments of iron objects that had been found in the same place had nothing to do with the pile-dwellers, who were a bronze-using people.

M. Leemans, the curator of the Dutch collections, confessed that he had not been able from his researches in Holland to confirm the generalisation of the Scandinavian antiquaries. In Holland only very broad divisions can be recognised, and one can hardly wonder at this if we consider what the topographical features of Holland in prehistoric times were. A land of marsh and fen, the refuge of fugitive tribes, but hardly the chosen home of those among whom art-culture was most advanced. M. Bertrand wished to be understood as not questioning the existence of a bronze age proper in Scandinavia, but only as protesting against the correlation of this bronze age

with the so-called bronze age of Italy and the Mediterranean border-land, where iron and bronze seem to have been introduced almost simultaneously, and where the objects have a very different form and ornament. He said that, while the objects of this period found in Southern France established its near relation to Italy, those found in Northern were more like those of Scandinavia. He further said that there was not evidence in France of an age of cremation succeeding one of burial.

M. Hermelin then exhibited a chart, showing by coloured marks the distribution of prehistoric remains in the heart of Sweden proper, namely, the Malar Lake. He was followed by M. Montelius on the distribution of bronze objects in Sweden. As in the case of stone objects, the fertile district of Scania furnishes a large proportion of these—no less than 1,500 out of 2,500; but this proportion is not so great as in the case of the stone objects, of which 30,000 have come from Skane and only 7,000 from the rest of Sweden. Scania is separated from the Gothlands and Suithiod proper by the barren and formerly almost impassable district of Smaland, barren both of herbage and also of early remains. It would seem that the country further north was entirely cut off from Scania by this district, except along the edges of the sea in Halland and Bleking, and it seems to me, from other considerations and from the trade routes of later days, that it derived its culture and inhabitants chiefly from the district of Viken and the rich country about the Christiania fiord, and not directly from the south. As in the case of the stone objects, the bronze are practically limited in their northern range by the district about the Malar Sea, the Dal river being the actual frontier.

M. Chantre now distributed a beautiful diagram of the Rhone valley, on which the various kinds of prehistoric remains were marked by special signs and in various colours—these idiograms forming a capital bird's-eye view of the archæological topography of a country, both as to wealth, and also as to chronology and local distribution.

M. Dupont then read a paper "On Domestic Animals in Prehistoric Times," and remarked on the difficulty of distinguishing the remains of feral from those of domesticated animals. He remarked that the horse was abundant in the palæolithic age, and would seem to have furnished the folk of that period with flesh. It then seems to disappear, and its remains are not known in the age of polished stone implements. Did it become extinct, and was it re-imported, as it was in America? Are our horses descended from the horse of the quaternary period? M. Dupont urged that there was not evidence that the animals, not even the dog, used by the folk of the polished stone period

were domesticated. M. Desor combatted this, so far as Switzerland was concerned, and said that in the pile-dwellings of the neolithic age there, stables had been found.

M. de Baye then read an account of some artificial caverns he had explored in the department of the Marne. In these, rude sculptures, representing human figures and those of birds, carved with flint axes, had been found, as well as representations of such axes with their handles. These caverns were cut out of soft rock. M. Cazalis de Fondouce doubted whether the sculptures were of the age assigned, and asked if the caverns might not have been opened at a later period; but the author declared that the entrance was closed by undisturbed rubbish.

On Friday afternoon M. Vedel discoursed on the remains of the early iron age found in the very interesting Island of Bornholm, the original home of the Burgundians. These remains are of great interest, for it has been supposed that the knowledge of iron was introduced into Scandinavia in Roman times, while here 1,000 graves of the earliest iron age have been found, showing no trace of Roman influence, and showing a stage of transition, both in the objects and the graves, from the earlier age of bronze. I would remark that a "Memoir on the Archaeology of Bornholm," a most interesting area, is now in course of publication.

This was followed by another very interesting paper, by M. Aspelin, "On the Bronze Objects found in the area occupied by the Ugrian and Turkish Tribes." Some objects of this interesting kind have been secured by Mr. Franks for the British Museum collection. Would there were more. If it be not an impertinence, I do think that the members of our society might do more than is done in assisting the national collection of these things. The valley of the Yenissei is crammed with graves which have been mines of wealth to the Kazaks and other nomads of the district for generations. It seems a pity that so very few objects from this area have found their way to western Europe. M. Aspelin remarked that some objects of the iron age from the Altai have a decided resemblance to others found in Scythic graves, that is, in the kurgans of the steppes of Southern Russia.

M. Virchow then discoursed on the remains found near certain submerged towns on the coast of Pomerania, especially that of Julin. These, like Biorko, are sites of Norse cities, and, like it, are characterised by the presence of Byzantine and Arabic coins, while the pottery is also very similar. He also remarked on the presence of traces of pile-dwellings in both; this was probably the closing chapter in their history. M. Dirks then described the remains found in Frisia. Only one dolmen is

recorded there; this is in the neighbourhood of Backhuysen. There are, however, many burial mounds; most of them seem to be of the so-called Viking period, with similar remains to those found at Biorko,—among other things one coin with a Runic inscription, another Cufic, and many Merovingian, Carolingian, Byzantine, and Anglo-Saxon. Frisia is a country in a large degree reclaimed by Norse settlers, and was no doubt but thinly settled before the ninth century, when it became the chief harbour of the pirates who attacked the Empire, and was several times granted as a fief to them by the emperors. M. Cazalis de Fondouce argued against the position maintained by some speakers at the Brussels Congress, that there was a break in continuity between the palæolithic age and the neolithic. He argued that MM. Quatrefages, Hamy, and Broca had shown that we still have among our western European peoples types descended from the men of the earliest prehistoric age. There was no stratigraphical evidence showing a general submergence at the end of the palæolithic age. In regard to the wild animals, he said that there was perfect continuity. With the exception of a very few, the animals of the palæolithic age still survived among us; while, as to the domestic animals, he agreed with M. Steenstrup that they had not been introduced by the folk of the second stone age, but had been gradually domesticated from the wild species then living in Europe. While, as to the artistic relations of the question, it would seem that at Gourdan and elsewhere there had been found traces of the transition from the one epoch to the other, and that there was continuity from the earliest age to the present. The climate gradually ameliorated, no doubt, and there was a constant inflow of new inhabitants with new ideas, but no break such as separates one geologic age from another. He also addressed himself to another difficult question, and quite agreed with M. Bertrand that there does not seem to be a purely bronze age in southern France. There, bronze is always accompanied by finely-worked flint, and in the sites of Roman and Greek settlements there is no intervening stratum between this transition period of finely-worked flints and bronze and the purely Roman or Greek work. In the dolmens of the same country which belong to this epoch there are found buried and burnt remains side by side, showing that there incineration is not a good test of any real difference, as has been lately shown by my friend Mr. Pennington in regard to the Derbyshire graves. M. Pigorini combatted the notion advanced by M. Bertrand, that there was no bronze age proper in Italy, and argued that in the Terramare objects of bronze were found in the lower strata, and of iron in the upper.

M. Schaffhausen exhibited the drawing of a gold ring found in a Frankish tomb near Bonn, with an inscription which he thought was Runic; but Mr. Franks contested this view, and urged that the characters formed a monogram. Similarly decorated objects, of Merovingian and Carolingian age, had come under his notice. M. Schaffhausen then made some remarks on the megalithic structures of Germany, some of which, he said, had no burials under them, and which, he thought, were used in great civil or religious ceremonies. He remarked that under the imperial throne of Charlemagne, still preserved at Aachen, there is a passage under which the subject princes crawled to show their subordination to him. Surely the school of Tübingen ought to take charge of such speculations.

M. Zawiska then discoursed upon the prehistoric relics of Poland, and especially of the neighbourhood of Cracow. He showed, contrary to what had been said at the Brussels Congress, that not only were finely-wrought flints found beyond the Vistula, but abounded in Poland, and to the south-west as far as Volhynia. The finding of nuclei, &c., showed that they had been made on the spot. In Lithuania flint objects are rare, and the general impression of the author was that then, as now, the marshy, inhospitable plains, inhabited by Poles and Letts, were but thinly peopled. M. Zawiska also discoursed and distributed a memoir, written in Polish, upon remains of the palæolithic age found in Poland. The day's proceedings concluded with an account by M. de Baye of the discovery of a number of the chisel-headed arrow-heads, which are generally referred to as of the Egyptian type, and of which several specimens from Egypt are to be found both in the British Museum and the Christy collection. He had found these in caverns in the Department of the Marne, one had been found imbedded in a human vertebra.

On Saturday morning, the 13th, the Congress commenced with a paper by M. Chaplain Dupare, giving an account of his researches, in conjunction with M. Lartet, in the cavern of Urutz, on the borders of Bearn and the old Basque country. This is a very interesting cave, containing a burial-place with a skeleton and skull, and a set of ornaments made out of the teeth of the bear and lion, pierced and ornamented, the *débris* of a necklace, and accompanied by worked flints, such as are found in the caverns of the Vézère. Besides this burial-place were also found two hearths containing burnt bones of reindeer, horse, and cow, and a large number of worked flints; and besides these a neolithic grave containing some very choice specimens of worked flints. The author insisted on the continuity of the whole series, and the absence of any gap between

the traces of the earlier and later folk. M. Hamy, in describing the human remains, said that they were of the same type as those found at Cro Magnon. M. Dupont said it was the first time that the teeth of the greater carnivora had been found pierced and used for necklaces. Hitherto such ornaments as had been found were made from the teeth of the stag, fox, wolf, and horse. He divided the palæolithic folk into two sections—one the Troglodytes, who had a special art culture in their cavern homes; the other, people who lived out in the open, and characterised by remains such as those of the Somme valley. It was these latter who gradually improved their condition, &c., and drove the Troglodytes away, or superseded them. They only used caverns for burial. To these folk belonged the skulls of Sclaigneaux, described by M. Virchow, which had such a peculiar, macrocephalous appearance. The speaker supposed this had been caused by some artificial means. M. Virchow, in reply, doubted if it were possible to produce such a deformity of skull by artificial means. M. de Quatrefages argued in favour of the persistence of such types, and their occasional appearance in modern times, due either to heredity or atavism. He also argued against M. Virchow's view, that the Neanderthal skull was a casual deformity, and did not represent a type, and quoted the skulls from Gibraltar as being analogous to it. He eulogised the labours of MM. Broca, Topinard, &c., in the field of craniology.

M. von Dueben then read a paper "On the Anatomical and Ethnic Characters of Prehistoric Man in Sweden." He argued that there was no evidence from the skulls that the races of the stone and bronze ages in Scandinavia were different from the later Goths and Svears. Out of fifty skulls he had compared, there were not greater differences than between fifty contemporary skulls. There was a tendency to a somewhat larger head in the old skulls, but these long heads appeared even now. Most of the crania discovered were of the long-headed type. Among hundreds which he had examined only ten were of the short-headed kind—five from Denmark and five from Sweden. They were all found in graves of the stone age, and did not differ from the skulls of the Laps. The skulls had, in fact, been described by Nilsson and Retzius as Lap; but, as the other evidence seems to show that the Laps entered Scandinavia from the north, and did not advance southwards beyond the 62° of latitude, it is not safe to give them the specific name of Lap, as they probably belonged to some other short-headed race. M. Zetlal then described worked flints he had found in the Lybian desert. It was not universally allowed that they were of indubitable human origin, and that most careful observer, M. Desor, urged

that caution should be used in accepting them. They had been found among "innumerable fragments split by the influence of the heat of the desert," so that this caution was more than necessary. Many of them had been found twenty geographical miles to the west of the Oasis of Achel. Engelhardt concluded the morning's proceedings with some interesting remarks. He said that runes were unknown in Germany, or, indeed, south of the Eyder, and that they were introduced by the iron folk. He also made some remarks on the subject of menhirs. Those in the Isle of Bornholm were considered by M. Vedel to be of the end of the bronze age or the beginning of that of iron. In Denmark only two are known—one surmounting a tumulus containing a small piece of bronze. They have been found with runes upon them.

The afternoon sitting commenced with the exhibition of some drawings on pottery, by M. de Baye. These he assigned to the bronze age. M. Belucci gave a résumé of the prehistoric archaeology of the Italian province of Umbria, in which he said, *inter alia*, that no prehistoric object of pure copper had as yet been found there. M. Lorange then read a memoir "On the Iron Age in Norway." He said that tumuli of this period abounded in all parts of Norway, from Christiansand to the North Cape. The mounds of this age are often marked by circles of stone. He divided them into three classes, the earliest having no chamber inside, but the burnt ashes, with small ornaments of bronze and iron, showing no Roman influence, and themselves also burnt, are contained in burnt-clay urns. Sometimes glass beads are found in them. The mounds of the second period contain small squared chambers, in which the ashes are placed in bronze urns. The ornaments of bronze or gold are not burnt, but the arms are twisted and bent, and have been subjected to fire. Objects showing Roman influence now appear. One bronze vase has been found with the inscription, "Libertinus et Aprus curatores posuerunt." Ninety of these tumuli are now known. The third class contain large chambers, in which the remains are sometimes burnt, sometimes not, while the objects ranged round them have not been subjected to fire. Vases of burnt clay, of bronze and glass, the last of Roman origin, occur in them. In these are also found bracteates, and arms, and Roman objects, which enable us to date this class of tumuli at from the third to the seventh century. About eighty of these tumuli are known in Norway.

M. Hildebrand read a paper by M. Aspelin, of Helsingfors, upon the "Prehistoric Remains of Finland"—a most interesting area, whose remains were illustrated by a very magnificent set of drawings in one of the anterooms. M. Lerch told the meet-

ing that M. Aspelin and the University of Helsingfors propose to publish a work on the Antiquities of Finland. This paper concluded the actual business of the meeting. At night the Congress was entertained most hospitably by the King and Queen at the Royal Palace of Drottningholm. The members were taken there in several large steamers, and returned at midnight, the various villas on the beautiful Malar Lake being illuminated in their honour. On Sunday, the 16th, at the concluding meeting, an invitation was read by the President, on behalf of the Austrian Government, which was so well represented in the Congress in the person of the Hungarian abbot, M. Römer. This invited the members to hold their next meeting at Buda-Pest, a course which was assented to, and the meeting closed with votes of thanks to the officers and to the Swedish authorities who had shown us so much hospitality. The meeting was in every respect a great success—in the numbers it attracted, in the value of the communications, and the universal feeling of satisfaction both with the arrangements and with the programme.

In concluding this report, I must express my apologies for its very unsatisfactory character. If I had known, when at Stockholm, that such a report was expected from me, I should have tried to make it more worthy of your acceptance. The earlier part I have taken chiefly from my own notes. These were, unfortunately, incomplete, and for the latter portion I have had to have recourse very largely to the detailed report of the meeting by one of its secretaries, M. Cazalis de Fondouce, which has appeared in the *Revue Scientifique*, and also to an admirable *résumé* of the proceedings, printed in the *Academy*, by Mr. Gosse.

NOVEMBER 24TH, 1874.

Professor BUSK, F.R.S., *President, in the Chair.*

The minutes of the previous meeting were read and confirmed.

The following gentlemen were elected members: FRANCIS DASHWOOD WATSON, Esq., 26, Montagu Square, W.C.; CHARLES JUNIUS TINSON, Esq., Cleavelands, Cheltenham; ARTHUR WHITE, Esq., The Cedars, Hammersmith Road.

The thanks of the meeting were voted for the list of presents, as follows:—

FOR THE LIBRARY.

From the EDITOR.—*Revue Scientifique*, Nos. 20 and 21, 1874.

From the AUTHOR.—*Les Faunes Mammalogiques Tertiaire et Quaternaire du bassin du Rhône ; L'Age de la pierre et l'age du bronze en Troade et en Grèce ; Projet d'une Légende Internationale pour les Cartes Archéologiques Préhistoriques.* By M. Ernest Chantre.

From the AUTHOR.—The Cavern discovered in 1858 in Windmill Hill, Brixham, South Devon ; Notes on recent notices of the Geology and Palæontology of Devonshire, Part I. ; Notes on Dr. Rivières discovery of three new Human Skeletons in the Mentone Cavern, in 1873-4. By W. Pengelly, F.R.S.

From the EDITOR.—*Nature* (to date).

Col. A. LANE FOX exhibited a blow-pipe, a bow, and several arrows from Costa Rica. They were brought to this country by Mr. John Pearse, who obtained them from a friend, the latter having procured them from the Talamanca Indians, in exchange for surgical services rendered to them. The Talamanca Indians live in a secluded part of the country, near Port Limon, on the Caribbean Sea, and will not allow any Spanish-speaking person to go near them. The arrows consisted of long reeds, with hard wood, multibarbed fore-shafts, tipped in some cases with iron, leaf-shaped heads; they have no feathers. Col. Fox pointed out the resemblance in the mode of binding on the fore-shafts, and other points of detail, between these long arrows and those used in Brazil, as well as those used in New Guinea, and commented on the distribution of the blow-pipe in the northern part of South America, Central America, and the Pacific. Col. Fox also exhibited a stone celt found in a grave near San José, and another from Port Limon.

DISCUSSION.

Mr. PEARSE said the larger stone axe exhibited by Col. Fox was obtained by him (Mr. Pearse) in the neighbourhood of San José, Costa Rica. From the number of ancient graves which have been cut into by the railway, it is evident that the country was once very thickly inhabited. The small stone axe came from Limon. The blow-gun, bow, and darts are weapons of the Talamanca Indians, who live in an almost inaccessible country in the neighbourhood of the Monte Blanco. Very rich gold mines existed here in the times of the Spaniards, who treated the natives so cruelly that they one day arose and murdered all their masters; since then they have not allowed any Spaniard or Spanish-speaking person to visit their country; they also keep the locality of the mines a profound

secret. They are kind and hospitable to Englishmen. The speaker learnt these particulars from a young Virginian who accompanied Professor Gabb, of Boston, in a journey through the Blanco district, where he is now travelling.

Mr. E. CHARLESWORTH exhibited and briefly described some figures carved in silver-amalgam by native Mexican miners. He also exhibited a chaplet of gold and silver coins worn by the peasant women of Nazareth.

Mr. PEARSE, Mr. PARK HARRISON, Mr. HYDE CLARKE, Señor DE LA ROSA, Mr. GORE, Col. LANE FOX, and the PRESIDENT also spoke on the above communications.

Mr. Rudler read the following notes for the author :

NOTES on RUINS in the NEIGHBOURHOOD of PALMYRA. By C. COTESWORTH. [With Plate xxv.]

THE mausoleum visited by the author in March, 1872, is represented in Plate xxv. The entrance doorway faced the east; and a square, winding staircase was in the south-east corner. The tower was six storeys high, and had a large vault under the basement. Four loculi were built on the north and south sides of the basement, each divided into three compartments by porcelain shelves resting on ledges cut in side-walls. These divisions sometimes amounted even to eight in the upper rooms, which were not at all uniform in height; and it seemed as though the various storeys had been added from time to time as required. This tower, which may be taken as a typical one, had no cornices, rich ceilings, or sculpture, though probably under the arch in front the usual figure of a mourning female (recumbent), with elbow on an exhausted water-jar, once existed.

This place would have contained some 420 bodies. A large quantity of bones, mummy-cloths, and other dirt and rubbish was found, but no perfect remains beyond shell of building. On the south side of the Kurgetein road there is the ruin of one of these tombs, with four storeys standing; it is 30 feet square and 74 feet high. It has a handsome door about eight feet high; over this an arched recess with window, as in the preceding, and on the projecting sill a recumbent female figure. There is an inscription on this tower in Palmyrene and Greek, with the date 414 (102 A.D.). The ground-floor chamber is 27 feet 2 inches by 10 feet, and 19 feet 8 inches high. On either side there are four flat, fluted columns; dividing the loculi at the

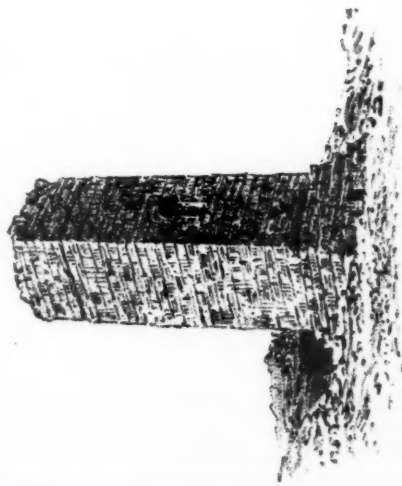


Fig 1

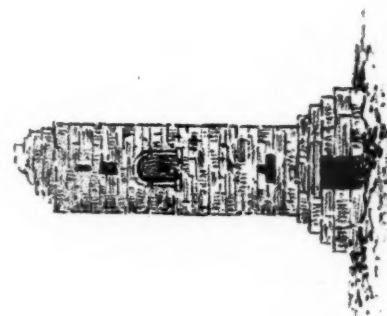


Fig 2.



Fig 3.



Fig 4.



Fig 5.

MAUSOLEUM AT PALMYRA.



end facing the door are two half columns, and above them nine figures with mutilated Palmyrene inscriptions to each. The ceiling is very rich, and of stone slabs, painted busts and flowers in relief on a blue ground. The ceilings of the upper floors are also panelled and painted. I am not sure whether it was in this, but the egg-and-dice cornice was very usual; also a heavy, deep, plain moulding round the lower chambers; the upper ones were in general quite plain. There were no remains of bodies or mummy-cloths here.

The chief group of these towers lies to the westward of this place and to the south of the Kurgetein road, on the hills facing the castle; most of them have been cleared out, probably by the Arabs for fuel—I have had very good coffee indeed boiled over a mummy fire; but there are still a good number of bones, &c., such as those I send you. They may or may not be interesting, but one thing I guarantee, they have never seen the light since first put away 1,800 or 2,000 years ago. There are also a large number of underground tombs and caves with the same arrangement of loculi as in the vaults under the towers. My own idea is that these are the remains of more ancient burial places, of which the overground structure has crumbled away. We sank some thirty or thirty-five shafts about 20 feet down, trying to discover a previously unopened one, but were unsuccessful. The open ones were of little interest, as hyenas, wolves, foxes, and other beasts of strong masticating habits had tossed about everything.

All the buildings are of a remarkably hard limestone, which takes a good polish, looking like marble, and standing weather better. It is in common use at Damascus for fountains, &c., where water has constant action.

EXPLANATION OF PLATE XXV.

Fig. 1.—Mortuary tower, or mausoleum, at Palmyra; from a photograph.

Fig. 2.—Elevation of east front of a tower, showing doorway; height of tower 111 feet; base, 33 feet 6 inches square; tower, 25 feet 8 inches square.

Fig. 3.—Plan of basement, showing four loculi on north and south sides.

Fig. 4.—Upper chambers, showing four loculi on each side, four above four.

Fig. 5.—Figure showing division of loculi on the basement into compartments by porcelain shelves, resting on ledges cut in the side-walls.

The President read the following paper :

NOTES of some SKULLS from PALMYRA, presented to the INSTITUTE by the late Mr. COTESWORTH. By GEO. BUSK, F.R.S., Pres. Anth. Inst.

THE skulls which form the subject of the following few remarks were procured by the late Mr. Cotesworth, and have been presented to the Institute by his executor.

Skull No. 1.—This skull is that of an individual probably between twenty and twenty-five years of age, and, from the characters, presumably of a female. The teeth are of small size and very regular, and the skull generally is of delicate formation and small dimensions. It is dolichocephalic ('78), with a regularly oval contour as viewed from above; in the *norma lateralis* it presents a vertical forehead, and a somewhat flattened or straight outline in the vertical region. The occiput is prominent. The face is orthognathous. It resembles, in fact, in all essential particulars, the skull represented in figs. 1, 2, 3, and 4 of the plate accompanying Mr. C. C. Blake's account of the Palmyrene skulls brought by Captain Burton ('Journ. Anthrop. Inst.,' vol. i. 1871, p. 312 *et seq.*), and which is stated by the writer to represent "a typical modern Syrian skull." The only point connected with this skull to which I need further advert is the great depth of the palate, which is also noticed by Mr. Blake (*l.c.* p. 314) as having existed in one of the skulls described by him; and, according to M. Pruner Bey, is characteristic of the "Semite Phenician." I should not, however, myself be inclined to place much stress upon such a character as of great distinctive value, seeing that it is often met with to quite an equal extent in almost every variety of race.

Skull No. 2 presents pretty nearly the same general form as the preceding, but it is of far larger size, having the very considerable length of 7·6 inches, with a width of 5·6 inches. It is well formed and perfectly symmetrical, and, from the teeth and other indications, has belonged to an individual about twenty-five years of age, of great muscular strength, and probably of tall stature. In most respects it corresponds very closely with the skull No. 2 of Mr. C. C. Blake's paper, and, so far as it goes, is in favour of the suggestion therein contained, that "a very large and exceptionally tall race of men existed at Palmyra at an early period of history."

Skull No. 3.—In this skull, which has apparently proved part of an entire mummy, the face is in great part still covered with remains of the dried integuments. It differs widely in several respects from the other two, both as regards age and conformation. It is that of an aged man, all of whose teeth

of the upper jaw are gone and their alveoli completely absorbed, as is the case also in a skull, now on the table, from Ain Sinia, procured by the late Mr. Tyrwhitt Drake in 1872. The forms, however, of the two skulls are quite distinct. The present one is highly dolichocephalic, the latitudinal index being $\cdot 71$ and the altitudinal $\cdot 72$, whilst the corresponding measures in Mr. T. Drake's skull are $\cdot 74$ and $\cdot 78$. The forehead is more reclined and the occiput more prominent than they are in the other two specimens.

Though adding little to the information respecting the Palmyrene mummy skulls afforded by Mr. C. C. Blake, those now exhibited are of interest as confirming the fact that the people whose remains they represent, at whatever period they existed, were a robust and dolichocephalic race, certainly having no relation to the Mongol type, and in all probability distinct, at any rate from the Hebrew branch, of the Semitic stock.

Dimensions and Proportions of Palmyrene Mummy Skulls.

	Length.	Breadth.	Height.	Latitudinal Index.	Altitudinal Index.
No. 1	6.9	5.4	5.2	7.8	7.5
„ 2	7.6	5.6	5.7	7.3	7.5
„ 3	7.6	5.4	5.5	7.1	7.2
Captain Burton, No. 4 ...	6.5	5.0	—	7.6	—
„ „ „ 5 ...	7.3	5.5	5.6	7.5	7.6

DISCUSSION.

MR. JEREMIAH, with reference to a remark made by the President as to the apparent likeness between the Tower of Palmyra, described in the note previously read, and the old Bell towers in Italy, reminded the meeting that there was a passage in the "Chronicon Scotorum," of the Rolls publication series (Ireland), where a round tower is alluded to, under the date 949 A.D., as "The Belfry;" although he would be the last to maintain that the origins of the Irish and Scotch round towers and the square ones of Palmyra were identical.

The discussion was further sustained by MR. HYDE CLARKE and SEÑOR DE LA ROSA.

Mr. W. BOLLAERT exhibited a number of photographs, engravings, and sketches of Peruvian antiquities, and communicated some descriptive notes, which were read by Mr. Rudler. The collection has been presented to the Institute by Mr. Bollaert, and includes the following photographs, &c. :—

Photograph of a Peruvian zodiac or calendar, found at Cuzco, the ancient capital of Peru; photograph of the "Tupu," or engraved pin, found at Cuzco; tracing of the back gable of the Coricancha, or Temple of the Sun, at Cuzco; photographs of the Palace of the Inca Yupanqui, at Cuzco, of the House of the Virgins of the Sun, of the Temple of the Sun, of the House of Garcilasso de la Vega, taken by Mr. Squier, and lithograph of an ancient wooden cup found at Cuzco; photograph of Peruvian (probably Aymara) figurative writing, and enlarged tracing of the characters; photographs of Tia-Huanaco, Bolivia, including the great monolithic portal, the small portal, the "American Stonehenge," and the Seat of Justice; also photographs of Peruvian pottery and crania in the Museum at La Paz; drawing of a head, probably that of a Chimu ruler; photograph of stucco work, from the vicinity of Pativilca; engravings of an ancient vase and a "whistling jug"; and photograph of a Chimu sceptre from Chicama.

This collection of photographs, &c., with Mr. Bollaert's accompanying descriptions in MS., is deposited in the library of the Institute, where it is available for reference by the members.

The thanks of the meeting having been voted to Mr. Bollaert, the meeting separated.

DECEMBER 8TH, 1874.

J. E. PRICE, Esq., F.S.A., *in the Chair.*

The minutes of the previous meeting were read and confirmed.

Captain HAROLD DILLON, of Dytechley Park, Charlbury, Oxon, was elected a member.

The following presents were announced, and thanks were voted for the same :—

FOR THE LIBRARY.

From the SOCIETY.—Bulletin de la Société d'Anthropologie de Paris. Vol. IX. No. 2.

- From the AUTHORESS.—Zoroastre, son époque et sa doctrine en rapport avec les migrations Aryennes. By Madame Clemence Royer.
- From the AUTHOR.—The Descent of Man; 2nd edition. By C. Darwin.
- From Major SAMUEL R. J. OWEN.—Letters on Spiritualism. By Judge Edmonds.
- From the EDITOR.—Revue Scientifique. Nos. 22 and 23, 1874.
- From the AUTHOR.—On the Natural History and Distribution of Yellow Fever in the United States. By Dr. J. M. Toner.
- From the SOCIETY.—Proceedings of the American Philosophical Society. Vol. XIV. No. 92.
- From the INSTITUTION.—Journal of the Royal United Service Institution. Vol. XVIII. No. 78.
- From the SOCIETY.—Transactions of the Asiatic Society of Japan, July, 1874.
- From JAMES BURNS, Esq.—Human Nature, for Nov. 1874.
- From the MANX SOCIETY.—Chronicles of Man. Vol. II.
- From the EDITOR.—Nature (to date).
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The following paper was read by the author :

SOME ACCOUNT of a LEAF-WEARING TRIBE on the WESTERN COAST of INDIA. By M. J. WALHOUSE, late Madras Civil Service.

SOUTH CANARA is the most northerly of the Madras Provinces on the western coast of the Peninsula, and lies nearly midway between Bombay and Cape Comorin. Probably nowhere in India will a greater variety of castes, classes, and nationalities be met with than along its seaboard; for trading vessels from the Persian Gulf, the Arabian, and even the African ports, as well as from all along the Indian coast, resort thither; and on the inland side a constant communication is kept up with Mysore, Coorg, and Malabar. One of the family of Dravidian tongues peculiar to Southern India is spoken only in South Canara, namely, the Tulu, now spoken by about 150,000 people, and really the popular tongue of the district, the ancient Hindoo name of which is Tuluva, but not being recognised officially or taught in schools, and being, moreover, hard pressed by the Canarese which surround its limited area, will probably die out. The Aliya Santāna law, or custom of inheritance on the female side, to the exclusion of sons, is also the recognised law of the district. Having been posted for several years at Mangalore, the head-quarters of the district, I often met with the people about to be described, the Korāgars, a remnant, now numbering but a few hundreds, of the aboriginal slave-castes, whose dis-

inctive peculiarity is that the women wear aprons or screens of woven twigs and green leaves over their buttocks. In old times both sexes were allowed to wear only these leafy aprons for clothing; but now the custom is confined to the women, and is an instance of how what was once a badge of degradation may become a cherished observance; for the leaf aprons are now useless, being worn *over* the clothes, and must indeed be inconvenient, and might doubtless be abandoned, but the usage is maintained by the women, who think that leaving it off would be unlucky. A number of Korägar women walking before one on a road present a quaint and peculiar appearance, with the leaf aprons covering all their hinder parts.

The people themselves are a very quiet and inoffensive race; small and slight, the men seldom exceeding five feet six inches; black-skinned, like most Indian aborigines, thick-lipped, noses broad and flat, and hair rough and bushy. Their principal occupation is basket-making, and they must labour for their masters. They live on the outskirts of villages, and may not dwell in houses of clay or mud, but in huts of leaves, called "Koppus." Like many of the wild tribes of India, they are distinguished by unswerving truthfulness. "The word of a Korägar" is proverbial, and is always at once accepted by even so tortuous and suspicious a people as the Hindoos, whose tendency is quite Cretan, and the other way. It were curious to speculate on the origin and continuance of this habit of truth-speaking in barbarous tribes; possibly an original instinct that may have become hereditary, or upheld by popular usage in peculiar circumstances, but too generally obscured and destroyed.* Numerous slave-castes, held and regarded by the upper classes as slaves, exist throughout India, not of course recognised by law—indeed, formally emancipated by an Act of Government in 1843—but still, though improved in condition, virtually slaves. Their origin and status in the complex Hindoo system are thus described.

After the four principal classes, who sprang from Brahma, came six Anuloma castes, which arose from the intercourse of Brahmans and Kshatryas with women of the classes below them respectively. The term Anuloma denotes straight and regular hair, which in India always characterises the Aryan stock. After these came six Pratiloma castes, originating in reverse order from Brahman and Kshatrya women by fathers of the inferior classes. The third amongst these was the Chandāla, the offspring of Shudra fathers by Brahman women. Each of

* See J. S. Mill's "Essays," page 51, "Savages are always liars. They have not the faintest notion of truth as a virtue." This must have been said in his haste.

these castes has its own distinctive appellation, and rigidly observed rules and status.

The Chandālas, or slaves, were again subdivided into fifteen classes, none of which might intermarry, a rule still strictly observed. The two last, and lowest of the fifteen classes, are the Kāpāta, or rag-wearing, and the Soppu, or leaf-wearing Korāgars. Such is the account given by Brahman chroniclers; but the probability is that these lowest slave-castes are the descendants of that primitive population which the Aryan invaders from the north found occupying the soil, and, after a struggle of ages, gradually dispossessed, driving some to the hills and jungles, and reducing others to the condition of slaves. No history records the contests, struggles, and revolutions that must have prevailed for unknown periods; only some faint echoes can be caught in popular traditions; and in laws, rules, and existing customs, the antiquary can see evidence of times when the ancestors of the half-wild subject classes of to-day were the masters of the land. The mountain-ranges and great jungle tracts of Southern India are inhabited by semi-savage tribes, who, there is good reason to believe, once held the fertile, open plains, and were the builders of those megalithic sepulchres which abound over the cultivated country. It is known that even up to the 15th century a primitive race, called Karumbars, formed an extensive and powerful federation in the south. That race has now very nearly vanished, a very scanty remnant only existing in the wildest recesses of some of the western mountain regions. All these races are regarded by their Hindoo masters with boundless contempt, and held unspeakably unclean. This feeling seems the result and witness of times when the despised races were powerful, and to be approached as lords by their now haughty masters, and was probably intensified by struggles and uprisings, and the memory of humiliations inflicted on the ultimately successful conquerors. Evidence for this may be inferred from many curious rights and privileges which the despised castes possess and tenaciously retain. On certain days they may enter temples which at other times they must not approach. There are several important ceremonial and social observances which they are always called to inaugurate or take some share in, and which, indeed, would be held incomplete and unlucky without them; and at particular seasons there is a festival much resembling the classic Saturnalia, in which, for the time, the relation of slaves and masters is inverted, and the former attack the latter with unstinted satire and abuse, and threaten to strike work unless confirmed in their privileges, and humbly solicited to return to labour.

Moreover, the contempt and loathing in which they are

ordinarily held are curiously tinctured with superstitious fear, for they are believed to possess secret powers of magic and witchcraft, and influence with the old malignant deities of the soil, who can direct good or evil fortune. As an instance relating to the subjects of the present paper, if a Brahman mother's children die off when young, she calls a Korāgar woman, gives her some oil, rice, and copper money, and places the surviving child in her arms; the out-caste woman, who may not at other times be touched, gives the child suck, puts on it her iron bracelets, and if a boy, names it Korāgar, if a girl, Korāpūlu; she then returns it to the mother: this is believed to give a new lease of life. Again, when a man is dangerously ill, or persistently unfortunate, he pours oil into an earthen vessel, worships it in the same way as the family god, looks at his face reflected in the oil, and puts into it a hair from his head and a nail-paring from his toe. The oil is then presented to the Korāgars, and the hostile gods or stars are believed to be propitiated.

The power and eventual degradation of the Korāgars are thus spoken of in an ancient local tradition. When Lokadirāya, whose date is fixed by Wilks about 1450 B.C., was King of Bhanvarshe, in North Canara (a place noted by Ptolemy), an invader, by name Habāshika, brought an army from above the Ghauts, consisting of all the present Chandāla or slave-castes, overwhelmed that part of the country, and marched southward to Mangalore, the present capital of the province. The invading host was scourged with smallpox, and greatly annoyed by* ants, so Habāshika moved on to Manjeshwar, a place of ancient repute, twelve miles to the south, subdued the local ruler, Angārawarma, son of Virawarma, and reigned there in conjunction with his nephew; but after twelve years, both died—one legend says through enchantments devised by Angārawarma; another, that a neighbouring ruler treacherously proposed a marriage between his sister and Habāshika, and on the bridegroom and his castemen attending for the nuptials, a wholesale massacre of them all was effected, after the manner of the massacre of the British chiefs by the Saxons on Salisbury plain. Angārawarma then returning, drove the invading army into the jungles, where they were reduced to such extremity that they consented to become slaves, and were apportioned amongst the Brahmins and original landholders: some were set to watch the crops and cattle, some to cultivate, others to various

* The neighbourhood of Mangalore is still very bushy, and the fierce, biting yellow ant (*Ecophylla smaragdina*) makes its nest amongst the leaves, and abounds to a most annoying extent, penetrating everywhere; one cannot brush against a tree or bush without the risk of getting some on one, and they bite like furies.

drudgeries, which are still allotted to the existing slave-castes, but the Korāgars, who had been raised by Habāshika to the highest posts under his government, were stripped and driven towards the sea-shore, there to be hanged, but, being ashamed of their naked condition, they gathered the leaves of the nicki bush (which grows abundantly on waste places) and made small coverings for themselves in front. On this their executioners took pity on them and let them go, but condemned them to be the lowest of the low, and to wear no other covering than leaves. This wild tradition no doubt covers some actual occurrences; whether the invader and his host were foreigners, or whether he was a Hindoo Spartacus or Wat Tyler, who roused the servile races against oppression, must be doubtful; but that in some way, at a remote period, a revolution happened, in which the present degraded classes attained the upper hand, seems very probable; and this would account for the contempt and loathing with which those classes are now regarded, as well as for the rights and privileges which it may have been found prudent to concede, and for the tincture of latent superstitious dread which they still inspire. The Korāgars, it will be remembered, are said to have occupied the highest posts under the revolutionary government; they are now the lowest of the slave divisions, and regarded with such intense loathing and hatred that up to quite recent times one section of them, called Andy, or Pot-Korāgars, continually wore a pot suspended from their necks, into which they were compelled to spit, being so utterly unclean as to be prohibited from even spitting on the highway; and to this day their women continue to show in their leafy aprons a memorial of the abject degradation to which their whole race was doomed—a degradation as deep as their traditional eminence, attested by the magical influence still attributed to them, had been high—a memorial, moreover, that is now a mere useless encumbrance, retained when it might be discarded.

It may be noted that, according to the traditional accounts, when the invading hosts under Habāshika were in their turn overthrown and subjected, they accepted slavery under certain conditions that preserved to them some shadow of right. Whilst it was declared that they should be for ever in a state of servitude, and be allowed a meal daily, but never the means of providing for the next day's meal, each slave was ascripted to his master under the following forms, which have come down to our days, and were observed in the purchase or transfer of slaves within living memory:—

The slave having washed, anointed himself with oil, and put on a new cloth, his future owner took a metal plate, filled it with water, and dropped in a gold coin, which the slave appro-

priated after drinking up the water. The slave then took some earth from his future master's estate and threw it on the spot he chose for his hut, which was given over to him with all the trees thereon. When land was transferred the slaves went with it, and might also be sold separately; occasionally they were presented to a temple, for the service of the deity. This was done publicly by the master approaching the temple, putting some earth from before its entrance into the slave's mouth, and declaring that he abjured his rights and transferred them to the deity within. So in England, when a master abjured his right over a slave it was done publicly in the market-place, or in the church before the principal altar, when the lord, taking the slave's hand, offered it to the sheriff or priest, gave him a sword and laver, and told him that the ways were open to him and that he was free.

Rules were also laid down, with the Hindoo passion for regulating small matters, not only detailing what work the slaves should do, but what allowances of food they should receive, and what presents on certain festival occasions they should obtain from, or make to, the master. On marriages amongst themselves they prostrated themselves before the master and obtained his consent, which was accompanied with a small present of money and rice. The marriage over, they again came before the master, who gave them betel nuts and poured some oil on the bride's head. On the master's death his head slave immediately shaved his hair and moustache. There was also a list of offences for which masters might punish slaves, amongst which the employment of witchcraft, or sending out evil spirits against others, expressly figures; and the punishments with which each offence might be visited are specified, the worst of which are branding, and flogging with switches. There was no power of life and death, and in cases of withholding the usual allowance, or of punishments severer than prescribed, slaves might complain to the authorities. This mildness contrasts favourably with slave-usages in Europe and America.

Like all the slave-castes and lower races, the Korāgars worship Mari Amma, the goddess presiding over smallpox, the most dreadful form of Parvati, the wife of Shiva. She is the most popular deity in Canāra, represented under the most frightful form, and worshipped always with bloody rites. Goats, buffaloes, pigs, fowls, &c., are slaughtered at her temples; and their heads must be severed at a single blow by an Asādi, one of the slave-tribes from above the Ghauts. Although the Korāgars, in common with all slaves, are looked upon as excommunicated and unfit to approach any Brahminical temple or deity, they have adopted the popular Hindoo festivals of the Gokalastmi or Krishna's birthday, and the Chowti. In the latter

the preliminaries and prayers must be performed by a virgin; in the former there is much feasting and drinking: they sit close together, and if a grain of rice should fall, accidentally or not, on a neighbour's platter, all cease eating, and the offender is liable to a fine and excommunication; for even these lowest of tribes do form castes, from which exclusion is inflicted for various offences, such as seduction of a girl or widow, intercourse with women of the castes beneath them, eating in the houses of those of inferior caste, and, amongst the Korägars, to enter the hut occupied by a single female after sunset brings degradation. Re-admission is usually effected by paying a fine and giving a feast to the community; and in some instances a row of seven small huts is built on a river-bank, set fire to, and the offender made to run over the burning sticks and ashes as a penance. But the principal and familiar worship of the Korägars, as of all the primitive village populations throughout India, is paid to local demons, evil spirits or goblins, called Bhutas, legions of which are spread over the country, some one usually becoming temporarily popular from one cause or another over a narrower or wider area. The special Bhuta of the Korägars is named Katu, for whom a spot is chosen under a *kasārcāna* tree. Two plantain leaves are placed there, and a heap of boiled rice coloured with turmeric laid on them, and prayers offered by the eldest Korägar. May, July, and October are the principal months for worship.

At the marriages of the Korägars, for which Sunday is an auspicious day, though Monday is for the other slave-castes, the bridegroom and bride, after bathing in cold water, sit on a mat in the former's house, with a handful of rice placed before them. An old man presides, takes a few grains of rice and sprinkles on their heads, as do the others present, first the males and then the females. The bridegroom then presents two silver coins to his wife, and must afterwards give six feasts to the community. Though amongst the other slave-castes divorce is allowed by consent of the community, often simply on grounds of disagreement, and the women may marry again, with the Korägars marriage is indissoluble, but a widow is entitled to re-marriage, and a man may have a second, and even third, wife, all living with him. On occasion of a birth the mother becomes unclean, and the hut is deserted by the other inmates for five days; on the sixth day the mother and child are restored to purity by a tepid bath, and the child is named. Rice and vegetables are presented to the mother, and several cocoa-nuts split in two, the under half being given to the mother, and the upper to the master, if the child be male, contrariwise if female. On death the bodies of all the slave-castes used to be burnt, except in cases of death by smallpox; this may have been to obviate the pollution of

the soil by their carcasses when their degradation was deepest, but now, and from long past, burial is the universal rule. The master's permission is still asked, and after burial four balls of cooked rice are placed on the grave, possibly a trace of the ancient notion of supplying food to the ghost of the deceased.

All the Hindoos believe that the Korāgars have a language of their own, understood only by themselves, but it seems doubtful whether this is anything more than an idiom, or slang, such as is current amongst almost every caste and profession in India. It may be noted that the Korāgars alone of all the slave or other castes eat the flesh of alligators, and they share with one or two other divisions of the slaves a curious scruple or prejudice against carrying any four-legged animal, dead or alive; this extends to anything with four legs, such as chairs, tables, cots, &c., which they cannot be prevailed upon to lift unless one leg be removed. As they all work as coolies, this sometimes produces inconvenience. The only reason assigned for this scruple is lest they should be treated as deformed.* It only remains to add that during my last sojourn at Mangalore, after a considerable interval of absence, three years ago, the number of women wearing the leaf aprons behind seemed perceptibly to have diminished, and very possibly the custom may in a generation or two become extinct.†

Common Korāgar Names.

Male.—Jibbu, Chanda, Purala, Timmu, Tanya, Toma, Tukra, Angūra, Tāwāda.

Female.—Korāpūlu, Mawa, Timpalli, Chantri, Tukri.

Designations of the fifteen slave-castes, in order of precedence.

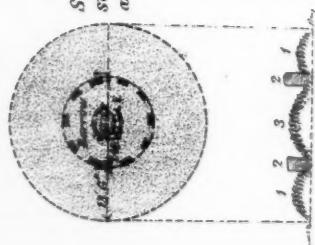
Hambatar	Merar	Bākada, with 3 subdivisions:
Pānar	Korajar	1. Chujana Bākada
Hasalar	Asādi	2. Turibina Bākada
Parawar	Holiya	3. Gōddina Bākada
Bélar, or Medarar	Madiga	Kāpāta Korāgar
Butadar	Nuliga	Soppu Korāgar

Even the three Bākada subdivisions may not intermarry.

* It may probably fall within the category of remarkable customs, collected by Mr. Tylor, in his "Early History of Mankind," chap. x., for which no reason can be assigned. A somewhat similar scruple obtains amongst the Bygas of Central India, whose women are not allowed to sit or lie upon any four-legged bed or stool.

† In the Chānda district of the Central Provinces the women in the wilder tracts wear no clothes at all, but only a string round the waist, whence every morning they suspend a bunch of leaves before and another behind. The practice is reported to exist in the Kōl country, and also in Orissa, where it is traced up to the command of one of their deities to reprove women for their pride.—*Rev. S. Hislop.*





Plan and
Section of barrow
stone circle and
annular mound.

Fig 1.

ABNEY MOOR

1. 1. annular mound.
2. 2. stone circle.
3. 3. barrow in centre.

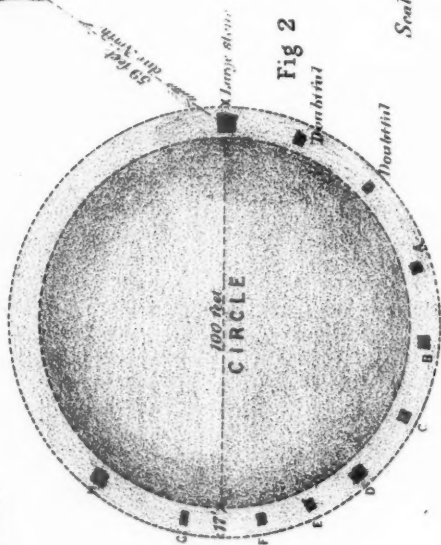


Fig 2 WET WITHINS MOOR

Scale, 50 Feet to an Inch.

The following paper was read by the Author :—

NOTES on some TUMULI and STONE CIRCLES near CASTLETON, DERBYSHIRE. By ROOKE PENNINGTON, LL.B., F.G.S. [With Plate xxvi.]

DURING the last five or six years I have from time to time engaged myself, in company with Mr. John Tym, of Castleton, in opening a number of the barrows which still remain unexplored in that picturesque neighbourhood.

These burial places of our predecessors occur most frequently upon the tops of hills, often designated "lowes," a well-known Anglo-Saxon (English) term for burial mound, but not seldom exist still in the valleys, and it may be doubted whether their comparative scarcity in the dales is not the effect of cultivation. The barrows are by no means confined to the Mountain-Limestone heights; they are equally distributed over those of the Millstone-Grit moors which are contiguous to fertile valleys; though those in the latter position seldom contain remains as well preserved as the limestone tumuli. No doubt the greater dryness of the latter has something to do with this.

The first barrow the contents of which I will describe, is one situated on the top of Elden Hill, about four miles from Castleton. Elden Hill is celebrated for having in its side the famous chasm, known as Elden Hole, a descent into which I made last summer. The mound was circular, forty-nine feet in diameter, and about five feet high in the centre. Mr. Bateman, the well-known Derbyshire archæologist, dug into its upper portion in 1856, finding two interments.* He left, however, the greater portion of the mound intact. Upon cutting into the northern side of the mound, we soon came upon numbers of rats' bones,† and snail-shells (*Helix nemoralis*), and then upon an occasional human bone, possibly dragged by rats into its position. The mound had never been disturbed before on this side. After working some time and removing some large stones, apparently supports for looser materials within and above, human bones became more plentiful, and masses of rats' bones—amongst which an occasional finger or wrist-bone of man occurred—became frequent. About four feet into the mound, embedded in earth, and at a depth of about a foot and a half, we came on some bones and teeth of the horse; the bones appeared to be very much diseased. About a foot further on, and a foot deeper, two feet and a half from the surface, was a left antler of red deer, which had been worked or shaved off at one place for some purpose. It was firmly fixed in the earth, and very rotten. Shortly

* "Ten Years' Diggings in Celtic and Saxon Grave Hills," p. 87.

† The water-vole or water-rat (Owen), *Arvicola amphibia*, mentioned below.

after, at a greater depth, we came upon another portion of red deer antler, and some teeth of that animal, one very large.

When within about a foot of the centre of the mound, and at a depth of about three feet and a half from its surface, we opened into a large cist. (This cist was on our left, to the north-west of the centre.) We found that it was the same cist into which we had dug from the south-west in November, 1869. It was of large extent, and in it we found fragments of a rude urn, ornamented with the finger-nail and a sharpened stick. It had been crushed by falling earth, but the whole of it was there, though very fragile. Near it was a number of human bones, evidently of an old man.

We were now at the opposite side of this cist, but found nothing in it, save a bone of the horse. Proceeding with our excavation to the centre, we noticed that the subsoil disappeared, and that upon clearing out the *débris* of the mound we were on the rock. That we were, in fact, in a shallow grave, became manifest; rats' bones became more plentiful than ever, in fact, they came out by spadefuls. The presence of these bones in such large quantities may be explained by supposing that the rats, possibly resorting, in the first instance, to the barrows for the purpose of devouring the bodies, found them agreeable places of residence, and took up their quarters from time to time amongst the loose stones of the tumuli. Seeing that it is the water-vole (*Arvicola amphibia*) which is thus found, it seems strange that in this, as in many cases, the barrow stood on a hill remote from any water whatever, the very streams in the neighbourhood being all subterranean (the formation is the mountain limestone). I can only suppose that considerable changes have taken place, and that formerly the growth of forests over the now treeless wastes, and the underwood accompanying, made the now arid valleys humid and swampy. Even in the middle ages, the district of the Peak Forest, in which this barrow is situate, was much better wooded than it is now.

To return to the grave. In it was a tolerably well-preserved skeleton of some young person, probably, I should say, not more than seventeen years of age. The body had been placed on its left side, in a contracted position, knees into chin, the face looking north. The skull was protected by three stones, with a cap-stone. No regular cist, however, protected the remainder of the body; there were simply a number of large pieces of limestone irregularly piled around it.

No implement was found, except what seemed to be a fragment of a bone: one, and only one, little bit of unglazed pottery. A number of animal bones accompanied the interment, showing

the funeral feast to have consisted of *Bos longifrons*, horse, and boar or pig: the latter very numerous.

The skull was long and narrow, and well developed. The teeth were well preserved. The ribs, vertebræ, &c., had nearly all disappeared; the long bones were, however, there, and served to show the position of the body. The cist previously mentioned, and Mr. Bateman's finds, were respectively at considerably higher levels. This interment was in the exact centre of the mound, and beyond all question the primary one.

The position of the ring of stones which, I have said, we came across in excavating, and which we subsequently found extended all round the outer fringe of the barrow, although concealed by the earth, and the symmetry also of the mound, show, I think, that it was altogether built up when this primary interment was made. We have, therefore, the funeral rites performed with all the barbaric pomp of feasting, and a large mound laboriously piled up, upon the occasion of the death of a young person who must have possessed some position other than that won by prowess or skill, which claimed these attentions. This would point to a recognition of the superior rank of a chief's family, for we know that young persons were not always thus honoured, and indeed it would be absurd to expect that savages would in every case expend this labour over the young. I do not, of course, mean to say that this is a solitary instance of this kind, but it is a very clear and conclusive one.

The remaining finds were not important. They comprised two collections of human bones, in heaps, with one of which was a flint chip and some quartz pebbles, the latter indicative, I think, of a late interment. Both the collections of bones were associated with the bones of the red deer. A portion of a jet ornament was also found, but with what particular interment it had been cast into the tumulus it was impossible to say, but probably with the primary one just described.

On the top of the hill known as Siggett (a corruption of Sidegate), just to the south-east of Castleton, was a large barrow about forty feet in diameter, though not more than three feet and a half in height. Beginning to dig on the north side we met with occasional human bones, teeth, and flint flakes. Throughout the whole mound the bones of the *Arvicola amphibius* were exceedingly abundant. Getting near to the centre, one foot below the surface, was an inverted urn of the usual rude type, made by hand, and ornamented with impressions of the thumb-nail. It was completely crushed in, but had been filled with burnt bones. A little to the right, and somewhat nearer the centre, was a fine skeleton. It was three feet and a half below the surface, and the natural soil had been slightly scooped

out to form a resting-place for it. It had been laid upon its left side in a contracted position, its head to the north-west. With it were a bronze ring, a jet bead, and a quartz pebble. The skeleton of a child was buried very near to it, and apparently with it. Both these skeletons were buried rather than encisted. There was no indication of any attempt to protect them from the earth and rock of the mound. Independently of the bronze ring, the quartz pebble points, I think, to a period later than the neolithic age, or at any rate than the earlier portion of that age.

Of nine cases in which the finding of quartz pebbles is specially recorded by Mr. Bateman, all, with one exception, present indications of belonging to a late period, and that exception is of doubtful age. Two of them are certainly, and two are almost certainly, subsequent to the introduction of iron. Quartz pebbles do not naturally occur near Castleton. I should think it unlikely that they were brought thither simply to be used as sling-stones, and still more unlikely that if this particular pebble was for that purpose, that the deceased should have been sped on her journey with but a single missile.

Other indications pointing to the comparative lateness of interments containing quartz pebbles, may it not be that they were deposited as amulets? Just as, no doubt, the practice of depositing flint flakes with the dead, a custom prevailing down into the iron age, arose from a superstitious veneration for the qualities of that stone, which in earlier times had been the sole source of all utensils, so may it be with quartz pebbles. These appear to be placed just as the flint flakes are placed, where there can be no use for them, and where there is great difficulty in assigning any other than a superstitious motive for so depositing them.

To return to the barrow. The skeleton appeared to be that of a female, considerably advanced in life. The skull was of the round form, but so rotten that it fell to pieces. The teeth were good, but worn flat. The bones were well preserved, but presented no peculiarity worthy of notice. Near to this skeleton, but not so placed as to be identified as appurtenant to it, was a well-chipped celt. There were so many interments in the mound that this might easily have belonged to some other than the one in question. Three or four feet from the skeleton, to the north of it, and about two feet and a half below the surface, was a deposit of burnt human bones, unaccompanied by any implement. At about the same distance from the skeleton, on the western side of it, was another urn, buried at about two feet below the surface. This had been a very large and fine urn; the diameter of its mouth was about eighteen

inches. It was crushed, but the rim was nearly perfect. The ornamentation had been effected by pressing twisted grass on the clay before burning. The urn was filled with burnt bones; no implement accompanied it.

Some distance to the south of the skeleton, at about three feet and a half below the surface of the barrow, and on the natural surface of the ground, were the burnt bones of some animal, accompanying the skeleton of a boy or girl. With this interment was a quartz pebble, and also two flint flakes. At the centre of the mound, nearly four feet below the surface, resting on the rock, was another urn, also much crushed. We succeeded in putting some portion of it together, and found that it was perfectly plain, no pattern or ornament having been impressed upon it. It was completely full of bones, much more thoroughly consumed than is usual, or than the other burnt bones in the same tumulus. Both human and animal bones could, however, be detected, and all appeared to be burnt in an equal degree. This would seem to show that the corpse was not burnt until after the funeral feast was concluded, and that then the bones of the animals eaten were cast at the same time and into the same fire with the body.

This is one of those barrows which have led me to the conclusion that, in Derbyshire, at any rate, no connection can be established between the neolithic age and contracted burial, and the bronze age and incineration. For instance, in this barrow we have four instances of incineration without any bronze implement accompanying them; and though this negative fact is not worth very much in leading us to a conclusion, yet the occurrence in the same mound of contracted burials associated with bronze, is one clear instance in support of my observation.

The barrows explored in the Derbyshire district show that the percentage of those in which contracted burial occurs with bronze is almost the same—very little less than those in which incineration and bronze go together. Besides this, the two modes of interment over and over again occur in the same mound, and very often the burnt one is the more ancient. It seems certain that in this district the two customs were in force at the same time, that both existed in the age of stone, and both continued in vogue after the introduction of bronze.

On the moors between Castleton and Eyam several circles and barrows of great interest remain; to three of these I would draw special attention. Upon Abney Moor is, or rather was, a sepulchral circle, presenting one of the several types of burial by cremation. Incinerated bodies are found sometimes in urns, sometimes deposited in cists, frequently placed, without protection from the superincumbent mound, upon the natural surface

of the ground. The circle-tumulus on Abney Moor differed from any of these in containing a quantity of burnt bones piled up upon a large, flat piece of sandstone (the "slate" of the locality), and screened from the earth, peat, and stones of which the barrow was composed by a large piece of rock. The mound was about twenty feet in diameter, and five feet and a half high. Outside and around was a rampart of earth about a foot high, the outside diameter of which was about fifty feet (fig. 1, Pl. xxvi.). Upon this rampart or annular mound were ten large stones, each upright and about three feet in height, placed along the rampart's inner margin. The entire sepulchre presented a most interesting relic of antiquity, being quite perfect, and standing very conspicuously out amidst the dreary moorland in which it was situated.

Upon digging into the mound, numerous fragments of bone, both burnt and unburnt, appeared, and also a few fragments of pottery. No entire urn was found except one, which, I believe, was whole, but which was unfortunately completely broken by the men before I got to the place. It appears to be of superior make to the ordinary barrow pottery. In the exact centre of the tumulus was found the interment I have referred to. The mass of burnt bone was considerable; it had been placed with some care upon the slab, though, as observed, no regular cist enclosed it. The traces of handicraft accompanying it were flint flakes, a chert flake, and some jet beads, some amber beads, and a very good arrow-head. The beads had evidently formed portions of necklaces. That the funeral fire had been lit upon the spot was manifest from the numerous pieces of burnt grit-stone and sandstone found upon the natural surface beneath the site of the barrow.

In the immediate vicinity of the circle are a number of pit dwellings, whose artificial character is clearly shown by their not being simply depressions in the peat and subsoil, but actual excavations in the rock itself. Within a short distance of this sepulchral circle are two other circles of a very different character. With great respect to some who hold other views, I feel quite sure that many of our megalithic circles, particularly the larger ones, are not sepulchral, but devotional. Being concerned in exposing the absurdity, or rather the want of foundation for calling stone circles Druidical, some archæologists seem to have gone to the other extreme, and so have denied that any of the circles are temples at all. Now the two other circles I have just mentioned are most remarkable contrasts to the Abney Moor one, and are clearly non-sepulchral.

On Offerton Moor is a circular rampart of earth. The outside diameter is eighty-nine feet one way, eighty-three feet the

other; the rampart seven feet wide, and two feet and a half high. About 100 feet away to the north-east is a large ruined barrow of the round form. No stones remained, but that the rampart once supported the megaliths of a circle is pretty clear, for the barrow was evidently destroyed to build a neighbouring wall many years ago, and the stones of the circle would go at the same time.

On the Wet Withins Moor is a very fine stone circle (fig. 2, Pl. xxvi.). The rampart is seventeen feet wide, the inside diameter is about 100 feet, the outside diameter 116 feet. The circle, probably, originally consisted of fifteen or sixteen stones; eleven are still standing. The stones stand at irregular intervals; the longest is on the north-east, and is nearest to the barrow to be presently described. This stone stands perpendicularly, and is shaped like a chair. The other stones are flat, varying in width from one foot to four, and inclining inwards at angles from forty to sixty degrees. The space between the stones varies from twelve to twenty-one feet.

To the north of the circle, and fifty-nine feet from it, is a large oblong barrow, eighty-four feet long by forty-six feet wide (see fig. 2, Pl. xxvi.), which was explored from time to time during the last century, though very meagre accounts of the results have been handed down. The north-eastern axis of the circle, which passes through the large stone mentioned as nearest to the barrow, is parallel with the principal axis of the tumulus.* This will be seen from the diagram (fig. 2, Pl. xxvi.). Now, within neither of these circles is there any trace of burial. Particularly in the more interesting one, the Wet Withins circle, the area within its circumference is entirely undisturbed, except where a large stone once stood in its centre. Nobody could have been buried beneath the rampart, and it is of course antecedently improbable that such should have been the case. Near each circle is the large burial mound just described, and evidently connected with it.

Now these circles are certainly not sepulchral, else the mounds would have been inside them, as in the Abney Moor circle. If not sepulchral, what are they? Is it not probable that a people of the intelligence which the peoples of the neolithic and bronze ages in England must have possessed would have a religion? The absence of religion is a characteristic of the most degraded races. If a religion, why not temples? and if temples, where else should the temples be found but on these moors, where are the pit-dwellings and hill forts of our out-of-door predecessors, who, almost ignorant of house building, must have worshipped,

* There is a sketch of this circle, by Sir Gardner Wilkinson, in the "Reliquary," vol. i. p. 159.

if they worshipped at all, in the open air? And does not the proximity of the tumuli to these circles seem to show that the dead were buried near to the sacred place, just as to-day the churchyard is the place of the Christian sepulchre?

In addition to the one described, there were formerly a large number of barrows, many of which have been ruthlessly destroyed by stone-getters on the Abney moors. Several I have, however, explored, with varying success. In many, all traces of burial had well-nigh disappeared; a fragment of a decayed urn, a few bits of bone, were all that remained, save flints, flakes, or perhaps an arrow-head or celt. The results I have obtained from other localities in this neighbourhood—from Oxlow, Shatton, Alport, and elsewhere—I do not describe, because they were unimportant, except in relation to matters not within the scope of this paper. But I may say that traces of the prehistoric age are numerous throughout North Derbyshire and on the surface of the country, as, for instance, on Mam Tor, Lose Hill, Rushup Edge, and other heights near Castleton, where flint flakes and implements are pretty frequently found. The former (the flakes) are common; and inasmuch as there is no flint to be found naturally within fifty miles at least of the place, each bit is an indication of the agency of man in transporting it to the place where it is now picked up.

EXPLANATION OF PLATE XXVI.

Fig. 1.—Plan and section of stone circle, barrow, and annular mound, on Abney Moor, near Castleton, Derbyshire.

Fig. 2.—Plan of stone circle and oblong barrow on Wet Withins Moor, near Castleton.

DISCUSSION.

Mr. WALHOUSE, in support of Mr. Pennington's view that some stone circles may have been intended for purposes other than sepulchral, probably devotional, observed that in India, especially on the Nilgiri Hills (Madras Presidency), he had seen some circles, though few, which showed no traces of enclosing interments of any description. Sepulchral tumuli surrounded by single, double, or even triple circles are indeed abundant; but such circles were very different in character from the few first referred to, which are far more extended, wider in diameter, and usually show traces of an entrance at the east side, and neither contain, nor are near, any interments or sepulchral tumuli.

Mr. JEREMIAH could not agree with that part of Mr. Pennington's paper where he seems to state that the so-called Druidical circles of Derbyshire and elsewhere must be considered as having been erected for some more important purpose than of being sepulchral—

in fact, as having been used for religious purposes, which, to his mind, conveyed the conclusion of their being Druidical. Now, interesting as the finds of dogs' bones and remains of horses, &c., may be in the exploration of the tumuli in the neighbourhood of the Derbyshire circles, he thought that the ever-recurring Druidical hypothesis deserved a passing attention, as it impeded the scientific study of the megalithic remains in Britain. Since the time of Dr. Stukeley downwards, archæology has always been found in conjunction with the ritual of a Druidical worship, which appears, at least, to be without any real foundation; and yet we are to resign our judgment upon the mere statement of Cæsar's, of there having been Druids in Gaul; and, speaking merely from hearsay, he leads one to infer that the mysterious arts they practised came from Britain. It must not be forgotten what incredible absurdities he indulged in with regard to the beasts inhabiting the Hercynian Forest, and his generally loose statements in reference to the tribes he conquered. The successive writers, as Strabo, Pomponius, Mela, and Tacitus, are all vague in their description of the Druids and their ritual. The most important statement of Cæsar's is, that the Druids were acquainted with the Greek characters; but here is the weakness, for the word "*græcis*," according to Scaliger, is an interpolation by a modern commentator; if not, then it is impossible to account for the curious fact that Divitiacus, the most learned of the Druids in Gaul, understood no Greek, which caused Cæsar to converse with him by an interpreter. This is the statement made by Cicero. I may here observe that this line of argument is older than some writers imagine, for I have found it in a "Short Dissertation about the Mona of Cæsar and Tacitus," by Thos. Brown, 1702. Having endeavoured to show a few objections to even the religious purposes of stone circles generally, he would rather suspend his judgment, and profess to know nothing absolute about the origin of the stone circles in Britain, than accept the *ipse dixit* of the author of the paper just read.

Mr. A. L. LEWIS said it gave him great pleasure to find so able an archæologist as the author of the paper evidently was, coming forward to support the view that all stone circles were not sepulchral; but he was rather surprised that he had not mentioned, in confirmation of this view, the great circle at Arberlows, in Derbyshire. The north-easterly bearing, from the circles, of the barrows, mentioned by the author, was a most interesting circumstance. It was not only at Stonehenge, but in other large British circles, that he (Mr. Lewis) had found a special reference to the north-east to exist, and it seemed from the paper to exist, though in another form, in Derbyshire. Mr. Jeremiah had been rather severe upon any who should attribute these monuments to the Druids, but there could be little doubt that most of them belonged to the Celts, and it was evident, from the classic writers, that nothing bearing, however remotely, on religion could have been done amongst the Celts without the sanction of the Druids. Mr. Jeremiah had, indeed, endeavoured to persuade them that those writers did not

know what they were writing about, or at least that their meaning could not now be understood; but Cæsar, in particular, had seen the Druids in Gaul, and would have seen them in Britain had the military part of the population permitted him to do so; and he had made statements about them which were as precise and of as great authority as any other part of his works, although they did not identify them with the rude stone monuments. This, however, was a question which was too wide to be discussed on that occasion.

Mr. J. E. PRICE remarked upon the value of the paper, as recording certain facts of interest which had come within the immediate observation of the author. The simple records of such facts were frequently of greater import than lengthened disquisitions on doubtful theories. While describing no great novelty, the paper was a contribution to materials already collected by Mr. Bateman in his "Derbyshire Researches,"* and by Mr. L. Jewitt, F.S.A., who, both in the pages of his "Reliquary," and in "Grave Mounds and their Contents," had so fully discussed the mass of information connected with the burial customs of the early races of Derbyshire. The frequent presence in barrows of the small bones of rats and mice had often been recorded.† The rat referred to was the "Arvicola," water-vole, or water-rat, which, as a native of the county, was known to have selected these old barrows for its winter home. The quartz pebbles mentioned by Mr. Pennington had also often been observed. In the Wiltshire barrows they had been thought by Sir R. Colt Hoare to have been used for slinging purposes.‡ At the same time, they may have been preserved as amulets or charms. In Anglo-Saxon graves it was no uncommon thing to find small balls of crystal; these, by early antiquaries, had been connected with magical ceremonies. At times, however, they had been observed with fastenings of the precious metals, and adapted for suspension as personal ornaments.§ Some reference had also been made to the respective periods to which the barrows and stone circles were to be assigned, as judged by the various distinctive forms of burial. Mr. Price ventured to think that the age of all our megalithic monuments was most uncertain. Who had constructed them, and what was their object, had not as yet been clearly ascertained. They were not referred to by Cæsar, or any other classic writer. If post-Roman, this was explained, if otherwise, it was singular that even in a county like Kent no reference to its stone monuments could be found. Kent was a county with which Cæsar and his generals must at least have been familiar.

* See 'The Opening of Tumuli, principally at Middleton, by Tolgrave, Derbyshire, from 1821 to 1832,' by W. Bateman, F.S.A., in "Collectanea Antiqua," by C. R. Smith, F.S.A. Vol. i. p. 49.

† See, for examples, "Crania Britannica," by Dr. B. Davis.

‡ "Ancient Wiltshire," Part I. p. 76, by Sir R. C. Hoare.

§ See "Inventorium Sepulchrale," by the Rev. Bryan Faussett, 1856.

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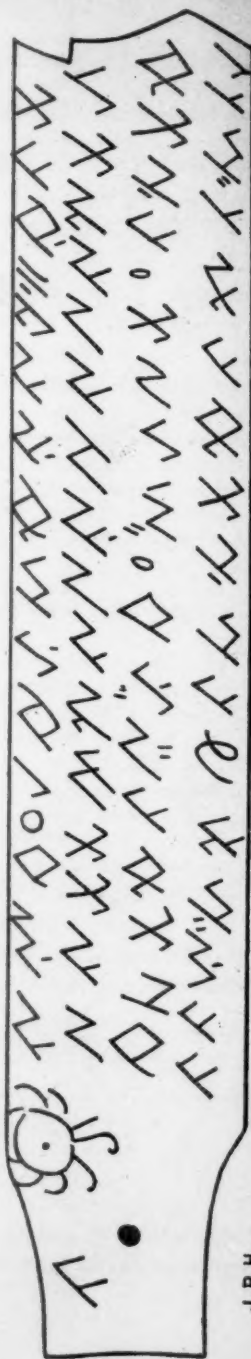
REJANG ALPHABET.

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VARIANTS																						

PHOENICIAN CHARACTERS.

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PART OF A REJANG M.S. ON BAMBOO.
(FROM SUMATRA)



J.P.H.

(LEFT IN. X 1 1/2 IN.)

STONE " V A A A C, O.

DECEMBER 22ND, 1874.

Professor BUSK, F.R.S., *President, in the Chair*.

The minutes of the previous meeting were confirmed.

GEORGE LAMBERT, Esq., F.S.A., of Coventry Street, and JOHN HARTE, Esq., of Shaftesbury Hall, Battersea Park, were elected members.

The following list of presents was read, and thanks were voted to the donors:—

FOR THE LIBRARY.

From the AUTHOR.—From the Indus to the Tigris. By H. W. Bellew, C.S.I.

From the AUTHOR.—The Shepherd Kings of Egypt. By the Rev. John Campbell, M.A.

From the EDITOR.—*Revue Scientifique*. Nos. 24 and 25, 1874.

From the ANTHROPOLOGICAL SOCIETY OF VIENNA.—*Mittheilungen der Anthropologischen Gesellschaft in Wien*. Band iv. Nos. 7, 8, and 9.

From the INSTITUTE.—*Verhandlungen der K. K. Geologischen Reichsanstalt*. Nos. 12 and 13, 1874; *Jahrbuch*, ditto, Band 24, No. 3.

From the IMPERIAL ACADEMY OF SCIENCES OF VIENNA.—*Sitzungsberichte* (philos.-histor.), Bands 75 and 76, Heft 1-3; ditto *Math.-naturw.*, 1873, I. Abtheil. Nos. 8-10; II. Abtheil. Nos. 8-10; III. Abtheil. Nos. 6-10; 1874, I. Abtheil. Nos. 1-3; II. Abtheil. Nos. 1-3.

From the ANTHROPOLOGICAL SOCIETY OF BERLIN.—*Zeitschrift für Ethnologie*. No. 5, 1874.

From the SOCIETY.—*Sitzungsberichte der Physikalisch-Medicinischen Societät zu Erlangen*. Heft 6, 1874.

From the EDITOR.—*Nature* (to date).

Mr. J. PARK HARRISON exhibited tracings of late Phœnician characters from Sumatra, and read the following note:

NOTE on PHŒNICIAN CHARACTERS *from SUMATRA*. By J. P. HARRISON. [With Plate xxvii.]

THESE characters are said to be still in use in the districts of Rejang, Lemba, and Passummah, in Sumatra. Manuscripts on thirty-one tablets formed of split bamboos were, it appears, acquired many years ago by the old East India Company, and are now in the library of the India Office. Nearly the whole of the letters inscribed on the convex surfaces of the bamboos are identical in form with Phœnician characters mostly

of a pure period, and afford a very remarkable instance of the survival of an early form of writing adopted by a non-literary race.

Marsden states that the letters of the Rejang alphabet consist of twenty-three characters. Corrected forms are given in his "History of Sumatra," third edition, and letters of the same form and number are found upon the margins of twenty-three of the bamboo tablets. This confirms Marsden's statement regarding the numbers of the characters, and shows that there is an unbroken set of tablets. Eight others have *two* letters each on the margins of the tablets—duplicates of the first eight letters of the Rejang alphabet.

In the fac-simile (Pl. xxvii.), which is derived from a photograph of the first tablet, it will be noticed that there are several forms which are not found in the Rejang alphabet. They are letters with occasional affixes or signs attached to them on the left side, which serve, according to Marsden, to alter the terminal sounds. There are eight of these signs (see plate). Examples of their use occur in the eighth and eleventh characters (from the commencement) of the first line of the manuscript, where the seventh and fourteenth letters of the alphabet appear with the fourth sign attached to them. Also, in the second line, the sixth and fourteenth characters have the same sign attached to the fifteenth letter of the alphabet. Two letters, viz. Nos. 11 and 22 are distinguished from No. 4 by slight additions. It really seems as if Nos. 11 and 22 were originally of the same form as No. 4 (the three thus answering to the Phœnician characters B, D, and R), but that the difficulty of distinguishing letters so much alike led to the addition of permanent suffixes.—The twentieth letter of the Rejang alphabet is the only one that has not been identified.*

It should be mentioned that the order of the letters is not the same as in Phœnician, and the letters themselves are generally reversed; their values, also, are different.

Both in Java† and Sumatra‡ written traditions, mixed with fable, refer to the arrival of ships in remote times, and at two different epochs, from the Red Sea and the Persian Gulf—in the one case at a time when vessels still coasted round the Bay of Bengal; in the other, in the age of Alexander, who is said to have built a bridge "in the sea," which may mean that ships commanded by some of his officers arrived direct from India. Three of his descendants are also said to have become kings of Palinbang, &c. The ships would have been manned principally by Phœnician sailors. Stript of legendary matter, there seems nothing contrary to, or incon-

* The tenth and seventeenth may be forms of "Ph" and "Th."

† Sir Stamford Raffles' "History of Java," p. 85.

‡ Marsden's "Sumatra," p. 3, note (2nd Ed.).

sistent with, history in these traditions, which consequently possess a certain value apart from the evidence afforded by the manuscripts. The importance attending the identification of these characters is principally ethnographical.

EXPLANATION OF PLATE XXVII.

Portion of a bamboo tablet with incised characters, from Sumatra; lithographed from a photograph. Also, Rejang alphabet, and Phœnician forms for comparison.

The following paper was read by the author:—

ON EARLY MODES OF NAVIGATION. By Col. A. LANE FOX.

In the paper which I had the honour of reading to this Institute at Bethnal Green, I spoke of the general principles by which I was guided in the course of inquiries, of which the present paper forms a section. I need not, therefore, now refer to them further than to say that the materials for this paper were collected whilst writing a note to my catalogue *raisonné* relating to the case of models of early forms of ships.

In inquiries of this nature it is always necessary to guard against the tendency to form theories in the first instance, and go in search of evidence to support them afterwards. On the other hand, in dealing with so vast a subject as Anthropology, including all art, all culture, and all races of mankind, it is next to impossible to adhere strictly to the opposite of this, and collect the data first, to the exclusion of all idea of the purpose they are to be put to in the sequel, because all is fish that comes into the anthropological basket, and no such basket could possibly be big enough to contain a millionth part of the materials necessary for conducting an inquiry on this principle. Some guide is absolutely necessary to the student in selecting his facts. The course which I have pursued, in regard to the material arts, is to endeavour to establish the sequence of ideas. When the links of connection are found close together, then the sequence may be considered to be established. When they occur only at a distance, then they are brought together with such qualifications as the nature of the case demands. Other members of this Institute have followed the same course in relation to other branches of culture, the object being to lay the foundation of a true anthropological classification, without seeking either to support a dogma or establish a paradox. This is, I believe, the requirement of our time and the necessary preliminary to the introduction of a science of Anthropology.

Whilst, however, deprecating the influence of foregone conclusions, there are certain principles already established by science which we cannot afford to disregard, even at the outset of inquiries of this nature. It would be sheer moonshine, in the present state of knowledge, to study Anthropology on any other basis than the basis of development; nor must we, in studying development, fail to distinguish between racial development and the development of culture. The affinity of certain races for particular phases of culture, owing to the hereditary transmission of faculties, constitutes an important element of inquiry to be weighed in the balance with other things, just as the farmer weighs in the balance of probabilities the nature of the soil in which his turnips are growing; but when particular branches of culture do run in the same channel with the distribution of particular races, this is always a coincidence to be investigated and explained, each by the light of its own history. It would be just as reasonable to assume with the ancients, that the knowledge of every art was originally inculcated by the gods, as to assume that particular arts and particular ideas arise spontaneously and as a necessary consequence of the possession of particular pigments beneath the skin.

Nobody doubts that there must be affinities and interdependencies between the race and the crop of ideas that is grown upon it; but the law *Ex nihilo nihil fit* is as true of ideas as it is of races, and in the relations between them it is as true and has the same value, neither more nor less, than the statement that potatoes do spring out of the ground where no potatoes have been sown. To study culture is, therefore, to trace the history of its development, as well as the qualities of the people amongst whom it flourishes. In doing this it is not sufficient to deal with generalities, as, for example, to ascertain that one people employ bark canoes, whilst another use rafts. It is necessary to consider the details of construction, because it is by means of these details that we are sometimes able to determine whether the idea has been of home growth or derived from without. The difficulty is to obtain the necessary details for the purpose. Travellers do not give them, as a rule, especially modern travellers. The older books are more valuable, both because they deal with nations in a more primitive condition, and also because they are more detailed; books were fewer, and men took more pains with them; now the traveller writes for a circulating library, and for the unthinking portion of mankind, who will not be bothered with details. I have been careful to give the dates to the authors quoted. But we must endeavour to remedy this evil before it is too late. The "Notes and

Queries on Anthropology,"* published by the Committee of the British Association, are drawn up with this object. It is to be hoped that they will receive attention, but I fear not much, for the reasons already mentioned; the supply will be equal to the demand. As long as we have a large Geographical Society and a small Anthropological Society, so long travellers will bring home accurate geographical details, abundance of information about the flow of water all over the world, but the flow of human races and human ideas will receive little attention. With these preliminary remarks I pass on to the subject of my paper.

Modes of Navigation.

Following out the principle adopted in Parts 1 and 2 of my Catalogue, of employing the constructive arts of existing savages as survivals to represent successive stages in the development of the same arts in prehistoric times, it may be advisable, in order to study the history of each part of a canoe or primitive sailing vessel, to divide the subject under five heads, as follows: viz.—(1) Solid trunks or dug-out canoes, developing into (2) Vessels on which the planks are laced or sewn together, and these developing into such as are pinned with plugs of wood, and ultimately nailed with iron or copper; (3) Bark canoes; (4) Vessels of skins and wicker-work; (5) Rafts, developing into outrigger canoes, and ultimately into vessels of broader beam, to which may be added rudders, sails, and contrivances which gave rise to parts of a more advanced description of vessel, such as the *oculus*, *aplustre*, *forecastle*, and *poop*.

1. *Solid trunks and dug-out canoes.*—It requires but little imagination to conceive an idea of the process by which a wooden support in the water forced itself upon the notice of mankind. The great floods to which the valleys of many large rivers are subject, more especially those which have their sources in tropical regions, sometimes devastate the whole country within miles of their banks, and by their suddenness frequently overtake and carry down numbers of both men and animals, together with large quantities of timber which had grown upon the sides of the valleys. The remembrances of such deluges are preserved in the traditions of many savage races, and there can be little doubt that it was by this means that the human race first learnt to make use of floating timber as a support for the body. The wide distribution of the word signifying ship—

* "Notes and Queries on Anthropology, for the use of travellers and residents in uncivilised lands," drawn up by a Committee appointed by the British Association for the Advancement of Science. Stanford, Charing Cross, 1874.

Latin, *navis* ; Greek, *vaos* ; Sanskrit, *nau* ; Celtic, *nao* ; Assam, *nao* ; Port Jackson, Australia, *nao*—attests the antiquity of the term. In Bible history the same term has been employed to personify the tradition of the first shipbuilder, *Noah*.

It is even said, though with what truth I am not aware, that the American grey squirrel (*Sciurus migratorius*), which migrates in large numbers, crossing large rivers, has been known to embark on a piece of floating timber, and paddle itself across (Wilson, "Prehistoric Man").

N.America.
Log of
wood.

The North American Indians frequently cross rivers by clasping the left arm and leg round the trunk of a tree, and swimming with the right (Steinitz, "History of the Ship").

Pointed
log,
N. W.
Australia.

The next stage in the development of the canoe would consist in pointing the ends, so as to afford less resistance to the water. In this stage we find it represented on the N.W. Coast of Australia. Gregory, in the year 1861, says that his ship was visited on this coast by two canoes, which had paddled off "on logs of wood shaped like canoes, not hollowed, but very buoyant, about seven feet long, and one foot thick, which they propelled with their hands only, their legs resting on a little rail made of small sticks driven in on each side." Mr. T. Baines, also, in a letter quoted by the Rev. J. G. Wood, in his "Natural History of Man," speaks of some canoes which he saw in North Australia as being "mere logs of wood, capable of carrying a couple of men." Others used on the north coast are dug out, but as these are provided with an outrigger, they have probably been derived from New Guinea. The canoes used by the Australians on the rivers consist either of a bundle of rushes bound together and pointed at the ends, or else they are formed of bark in a very simple manner ; but on the south-east coast, near Cape Howe, Captain Cook, in his first voyage, found numbers of canoes in use by the natives on the sea-shore. These he described as being very like the smaller sort used in New Zealand, which were hollowed out by means of fire. One of these was of a size to be carried on the shoulders of four men.

Dug-out,
West
Australia.

Excavation
by fire.

It has been thought that the use of hollowed canoes may have arisen from observing the effect of a split reed or bamboo upon the water. The nautilus is also said to have given the first idea of a ship to man ; and Pliny, Diodorus, and Strabo have stated that large tortoise-shells were used by the first races of mankind (*Pict. Bible—Isaiah*). It has also been supposed that the natural decay of trees may have first suggested the employment of hollow trees for canoes, but such trees are not easily removed entire. It is difficult to conceive how so great an advance in the art of shipbuilding was first introduced, but

there can be no doubt that the agent first employed for this purpose was fire.

I have noticed when travelling in Bulgaria that the gipsies and others who roam over that country usually select the foot of a dry tree to light their cooking fire; the dry wood of the tree, combined with the sticks collected at the foot of it, makes a good blaze, and the tree throws forward the heat like a fireplace. Successive parties camping on the same ground, attracted thither by the vicinity of water, use the same fireplaces, and the result is that the trees by degrees become hollowed out for some distance from the foot, the hollow part formed by the fire serving the purpose of a semi-cylindrical chimney. Such a tree, torn up by the roots, or cut off below the part excavated by the fire, would form a very serviceable canoe, the parts not excavated by the fire being sound and hard. The Andaman islanders use a tree in this manner as an oven, the fire being kept constantly burning in the hollow formed by the flames. Probable origin.

One of the best accounts of the process of digging out a canoe by means of fire is that described by Kalm, on the Delaware river, in 1747. He says: "When the Indians intend to fell a tree, for want of proper instruments they employ fire; they set fire to a quantity of wood at the roots of the tree, and in order that the fire might not reach further up than they would have it, they fasten some rags to a pole, dip them in water, and keep continually washing the tree a little above the fire until the lower part is burnt nearly through; it is then pulled down. When they intend to hollow a tree for a canoe, they lay dry branches along the stem of the tree as far as it must be hollowed out, set them on fire, and replace them by others. While these parts are burning, they keep pouring water on those parts that are not to be burnt at the sides and ends. When the interior is sufficiently burnt out, they take their stone hatchets and shells and scoop out the burnt wood. These canoes are usually thirty or forty feet long." In the account of one of the expeditions sent out by Raleigh in 1584 a similar description is given of the process adopted by the Indians of Virginia, except that, instead of sticks, resin is laid on to the parts to be excavated and set fire to; canoes capable of holding twenty persons were formed in this manner. N. America

The Waraus of Guiana employ fire for excavating their canoes; and when Columbus discovered the Island of Guanahane or San Salvador, in the West Indies, he found fire employed for this purpose by the natives, who called their boats "*canoe*," a term which has ever since been employed by Europeans to express this most primitive class of vessel. Guiana, West Indies.

Dr. Mouat says that, in Blair's time, the Andaman islanders Andaman Isles.

excavated their canoes by the agency of fire; but it is not employed for that purpose now, the whole operation being performed by hand. Simes, in 1800, speaks of the Birmese war-boats, which were excavated partly by fire and partly by cutting. Nos. 1276 and 1277 of my collection are models of these boats.

Birmah. In New Caledonia, Turner, in 1845, says that the natives felled their trees by means of a slow fire at the foot, taking three or four days to do it. In excavating a canoe, he says, they kindle a fire over the part to be burnt out, and keep dropping water over the sides and ends, so as to confine the fire to the required spot, the burnt wood being afterwards scraped out with stone tools. The New Zealanders, and probably the Australians also, employ fire for this purpose (*Cook*). The canoes of the Krumen in West Africa are also excavated by means of fire.

New Zealand, Australia. W. Africa.

Bending by fire. A further improvement in the development of the dug-out canoe consists in bending the sides into the required form after it has been dug out. This process of fire-bending has already been described in parts 1 and 2 of my Catalogue, when speaking of the methods employed by the Esquimaux and Australians in straightening their wooden spears and arrow-shafts. The application of this process to canoe-building by the Ahts of the north-west coast of North America is thus described by Mr. Wood in his "Natural History of Man:" "The canoe is carved out of a solid trunk of cedar (*Thuja gigantea*). It is hollowed out, not by fire, but by hand, and by means of an adze formed of a large mussel-shell; the trunk is split lengthwise by wedges. All is done by the eye. When it is roughly hollowed it is filled with water, and red-hot stones put in until it boils. This is continued until the wood is quite soft, and then a number of cross-pieces are driven into the interior, so as to force the canoe into its proper shape, which it ever afterwards retains. While the canoe is still soft and pliant, several slight cross-pieces are inserted, so as to counteract any tendency towards warping. The outside of the vessel is then hardened by fire, so as to enable it to resist the attacks of insects, and also to prevent it cracking when exposed to the sun. The inside is then painted some bright colour, and the outside is usually black and highly polished. This is produced by rubbing it with oil after the fire has done its work. Lastly, a pattern is painted on its bow. There is no keel to the boat. The red pattern of the painting is obtained by a preparation of *annato*. For boring holes the Ahts use a drill formed by a bone of a bird fixed in a wooden handle."

North-west America.

A precisely similar process to this is employed in the formation of the Birmese dug-out canoes, and has thus been described to me by Capt. O'Callaghan, who witnessed the process during

Birmah.

the Birmese war in 1852: "A trunk of a tree of suitable length, though much less in diameter than the intended width of the boat, is cut into the usual form, and hollowed out. It is then filled with water, and fires are lit, a short distance from it, along its sides. The water gradually swells the inside, while the fire contracts the outside, till the width is greatly increased. The effect thus produced is rendered permanent by thwarts being placed so as to prevent the canoe from contracting in width as it dries; the depth of the boat is increased by a plank at each side, reaching as far as the ends of the hollowed part. Canoes generally show traces of the fire and water treatment just described, the inner surface being soft and full of superficial cracks, while the outer is hard and close."

It is probable that this mode of bending canoes has been discovered during the process of cooking, in which red-hot stones are used in many countries to boil the water in vessels of skin or wood, in which the meat is cooked. No. 1256 of my collection is a model of an Aht canoe, painted as here described. No. 1257 is a full-sized canoe from this region, made out of a single trunk; it is not painted, so that the grain of the wood can be seen.

The distribution of the dug-out canoe appears to be almost universal. It is especially used in southern and equatorial regions. Leaving Australia, we find it employed with the outrigger, which will be described hereafter, in many parts of the Polynesian and Asiatic islands, including New Guinea, New Zealand, New Caledonia, and the Sandwich Islands. It was not used by the natives of Tasmania, who employed a float consisting of a bundle of bark and rushes, which will be described in another place. Wilkes speaks of it in Samoa, at Manilla, and the Sooloo Archipelago. De Guignes in 1796 and De Morga in 1609 saw them in the Phillippines, where they are called *pangues*, some carrying from two to three and others from twelve to fifteen persons. They are (or were) also used in the Pelew, Nicobar, and Andaman Isles. In the India Museum there is a model of one from Assam, used as a mail-boat, and called *dak nao*. In Birmah, Simes, in 1800, describes the war-boats of the Irrawaddy as eighty to one hundred feet long, but seldom exceeding eight feet in width, and this only by additions to the sides; carrying fifty to sixty rowers, who use short oars that work on a spindle, and who row instead of paddling. Captain O'Callaghan, however, informs me that they sometimes use paddles (Nos. 1276 and 1277). They are made of one piece of the teak tree. The king had five hundred of these vessels of war. They are easily upset, but the rowers are taught to avoid being struck on the broadside; they draw only three feet of

Distribu-
tion.Polynesian
and Asiatic
Isles.Bay of
Bengal.Southern
Asia.

- water. On the Menan, in Siam, Turpin, in 1771, says that the king's *ballons* are made of a single tree; and will contain 150 rowers; the two ends are very much elevated, and the rowers sit cross-legged, by which they lose a great deal of power. The river vessels in Cochin China are also described as being of the same long, narrow kind. At Ferhabad, in Persia, Pietro Delle Valle, in 1614, describes the canoes as being flat-bottomed, hollow trees, carrying ten to twelve persons.
- Persia.
- Africa. In Africa, Duarte Barbosa, in 1514, saw the Moors at Zuama make use of boats, *almadias*, hollowed out of a single trunk, to bring clothes and other merchandise from Angos. Livingstone says the canoes of the Bayeye of South Africa are hollow trees, made for use and not for speed. If formed of a crooked stem they become crooked vessels, conforming to the line of the timber. On the Benuwé, at its junction with the Yola, Barth, for the first time in his travels southward, saw what he describes as rude little shells hollowed out of a single tree; they measured twenty-five to thirty feet in length, one to one foot and a half in height, and sixteen inches in width; one of them, he says, was quite crooked. On the White Nile, in Unyoro, Grant says that the largest canoe carried a ton and a half, and was hollowed out of a trunk. On the Kitangule, west of Lake Victoria Nyanza, near Karague, he describes the canoes as being hollowed out of a log of timber fifteen feet long and the breadth of an easy chair. These kind of canoes are also used by the Makoba, east of Lake Ngami, by the Apingi and Camma, and the Krumen of the West African coast, of which last No. 1272 of my collection is a model.
- South America. In South America the Patagonians use no canoes, but in the northern parts of the continent dug-out canoes are common. One described by Condamine, in 1743, was from forty-two to forty-four feet long, and only three feet wide. They are also used in Guiana, and Professor Wilson says that the dug-out canoe is used throughout the West Indian Archipelago.
- West Indies. According to Bartram, who is quoted by Schoolcraft, the large canoes formed out of the trunks of cypress trees, which descended the rivers of Florida, crossed the Gulf, and extended their navigation to the Bahama Isles, and even as far as Cuba, carrying twenty to thirty warriors. Kalm, in 1747, gives some details respecting their construction on the Delaware river, already referred to, and says that the materials chiefly employed in North America are the red juniper, red cedar, white cedar, chestnut, white oak, and tulip tree. Canoes of red and white cedar are the best, because lighter, and they will last as much as twenty years, whereas the white oak barely lasts above six years. In Canada these dug-outs were made of the
- North America.

white fir. The process of construction on the west coast of North America has been already described.

In Europe Pliny mentions the use of canoes hollowed out of a single tree by the Germans. Amongst the ancient Swiss lake-dwellers at Robenhausen, associated with objects of the stone age, a dug-out canoe, or *Einbaum*, made of a single trunk twelve feet long and two and a half wide, was discovered (Keller, translated by Lee). In Ireland, Sir William Wilde says that amongst the ancient Irish dug-out canoes were of three kinds—one small, trough-shaped, and square at the ends, having a projection at either end to carry it by; the paddlers sat flat at the bottom and paddled, there being no rowlocks to the boat. A second kind was twenty feet in length and two in breadth, flat-bottomed, with round prow and square stern, strengthened by thwarts carved out of the solid and running across the boat, two near the stem and one near the stern. The prow was turned up; one of these was discovered in a bog on the coast of Wexford, twelve feet beneath the surface. The third sort were sharp at both ends, twenty-one feet long, twelve inches broad, and eight inches deep, and flat-bottomed. These canoes are often found in the neighbourhood of the crannoges, or ancient lake habitations of the country, and were used to communicate with the land; also in the beds of the Boyne and Bann. Ware says, that dug-out canoes were used in some of the Irish rivers in his time, and to this day I have seen paddles used on the Blackwater, in the south of Ireland. Professor Wilson says that several dug-out canoes have been found in the ancient river-deposits of the Clyde, and also in the neighbourhood of Falkirk. In one of those discovered in the Clyde deposits, at a depth of twenty-five feet from the surface, a stone, almond-shaped celt was found. Others have been found in the ancient river-deposits of Sussex and elsewhere, in positions which show that the rivers must probably have formed arms of the sea at the time they were sunk.

2. *Vessels in which the planks are stitched to each other.*—All vessels of the dug-out class are necessarily long and narrow, and very liable to upset; the width being limited by the size of the tree, extension can only be given to them by increasing their length. In order to give greater height and width to these boats, planks are sometimes added at the sides and stitched on to the body of the canoe by means of strings or cords, composed frequently of the bark or leaves of the tree of which the body is made. In proportion as these laced-on gunwales were found to answer the purpose of increasing the stability of the vessel, their number was increased; two such planks were added instead of one, and as the joint between the planks was

by this means brought beneath the water-line, means were taken to caulk the seams with leaves, pitch, resin, and other substances. Gradually the number of side planks increased and the solid hull diminished, until, ultimately, it dwindled into a bottom board, or keel, at the bottom of the boat, serving as a centre-piece on which the sides of the vessel were built. Still the vessel was without ribs or framework; ledges on the sides were carved out of the solid substance of each plank, by means of which they were fastened to the ledges of the adjoining plank, and the two contiguous ledges served as ribs to strengthen the boat; finally, a framework of vertical ribs was added to the interior and fastened to the planks by cords. Ultimately the stitching was replaced by wooden pins, and the side planks pinned to each other and to the ribs, and these wooden pins in their turn were supplanted by iron nails.

New
Zealand.

In different countries we find representations of the canoe in all these several stages of development. Of the first stage, in which side planks were added to the body of the dug-out canoe, to heighten it, the New Zealand canoe, No. 1259 of my collection, is an example. Capt. Cook describes this as solid, the largest containing from thirty men upwards. One measured seventy feet in length, six in width, and four deep. Each of the side pieces was formed of an entire plank, about twelve inches wide, and about an inch and a half thick, laced on to the hollow trunk of the tree by flaxen cords, and united to the plank on the opposite side by thwarts across the boat. These canoes have names given to them like European vessels.

Africa.

On the Benuwé, in Central Africa, Barth describes a vessel in this same early stage of departure from the original dug-out trunk. It consisted of "two very large trunks joined together with cordage, just like the stitching of a shirt, and without pitching, the holes being merely stuffed with grass. It was not water-tight, but had the advantage," he says, "over the dug-out canoes used on the same river, in not breaking if it came upon a rock, being, to a certain degree, pliable. It was thirty-five feet long, and twenty-six inches wide in the middle." No. 1258 of my collection is a model of one of these. The single plank added to the side of the Birmese dug-out canoe has been already noticed. Although my informant does not tell me that these side planks are sewn on, I have no doubt, judging by analogy, that this either is or was formerly the case.

Birmah.

South
America.

The Waraus of Guiana are the chief canoe-builders of this part of South America, and to them other tribes resort from considerable distances. Their canoe is hollowed out of a trunk of a tree, and forced into its proper shape partly by means of fire and partly by wedges, upon a similar system to that

described in speaking of the Ahts of North America and the Birmese; the largest have the sides made higher by a narrow plank of soft wood, which is laced upon the gunwale, and the seam caulked. This canoe is alike at both ends, the stem and stern being pointed, curved, and rising out of the water; there is no keel, and it draws but a few inches of water. This appears to be the most advanced stage to which the built-up canoe has arrived on either continent of America, with the exception of Tierra del Fuego, where Commodore Byron, in 1765, saw canoes in the Straits of Magellan made of planks sewn together with thongs of raw hide; these vessels are considerably raised at the bow and stern, and the larger ones are fifteen feet in length by one yard wide. They have also been described by more recent travellers. Under what conditions have these miserable Fuegians been led to the employment of a more complex class of vessel than their more advanced congeners of the north?

In order to trace the further development of the canoe in Africa. this direction, we must return to Africa and the South Seas. On the island of Zanzibar, Barbosa, in 1514, says that the inhabitants of this island, and also Penda and Manfia, who are Arabs, trade with the main land by means of "small vessels very loosely and badly made, without decks, and with a single mast; all their planks are sewn together with cords of reed or matting, and the sails are of palm mats." On the river Yeou, near Lake Tchad, in Central Africa, Denham and Clapperton saw canoes "formed of planks, rudely shaped with a small hatchet, and strongly fastened together by cords passed through holes bored in them, and a wisp of straw between, which the people say effectually keeps out the water; they have high poops like the Grecian boats, and would hold twenty or thirty persons." On the Logon, south-east of Lake Tchad, Barth says the boats are built "in the same manner as those of the Budduma, except that the planks consist of stronger wood, mostly *Birgem*, and generally of larger size, whilst those of the Budduma consist of the frailest material, viz. *Fogo*. In both, the joints of the planks are provided with holes, through which ropes are passed, overlaid with bands of reed tightly fastened upon them by smaller ropes, which are again passed through small holes stuffed with grass." On the Victoria Nyanza, in East Central Africa, Grant speaks of "a canoe of five planks sewn together, and having four cross-bars or seats. The bow and stern are pointed, standing for a yard over the water, with a broad central plank from stem to stern, rounded outside (the vestige of the dug-out trunk), and answering for a keel."

Thus far we have found the planks of the vessels spoken of merely fastened by cords passed through holes in the planks,

and stuffed with grass or some other material, and the accounts speak of their being rarely water-tight. Such a mode of constructing canoes might serve well enough for river navigation, but would be unserviceable for sea craft. Necessity is the mother of invention, and accordingly we must seek for a further development of the system of water-tight stitching amongst those races in a somewhat similar condition of culture which inhabit the islands of the Pacific and the borders of the ocean between it and the continent of Africa.

The majority of those vessels now to be described are furnished with the outrigger; but as the distribution of this contrivance will be traced subsequently, it will not be necessary to describe it in speaking of the stitched plank-work.

Polynesian
Isles.

In the Friendly Isles Captain Cook, in 1773, says "the canoes are built of several pieces sewed together with bandage in so neat a manner that on the outside it is difficult to see the joints. All the fastenings are on the inside, and pass through *kants* or ridges, which are wrought on the edges and ends of the several boards which compose the vessel." At Otaheite he speaks of the same process, and says that the chief parts are formed separately without either saw, plane, or other tool. La Perouse gives an illustration of an outrigger canoe from Easter Island, the sides of which are formed of drift-wood sewn together in this manner. At Wytoohee, one of the Paumotu, or Low Archipelago, Wilkes, in 1838, says that the canoes are formed of strips of coconut tree sewed together. Speaking of those of Samoa, he describes the process more fully: "The planks are fastened together with *sennit*; the pieces are of no regular size or shape. On the inside edge of each plank is a ledge or projection, which serves to attach the *sennit*, and connect and bind it closely to the adjoining one. It is surprising," he says, "to see the labour bestowed on uniting so many small pieces together, when large and good planks might be obtained. Before the pieces are joined, the gum from the husk of the bread-fruit tree is used to cement them close and prevent leakage. These canoes retain their form much more truly than one would have imagined; I saw few whose original model had been impaired by service. On the outside the pieces are so closely fitted as frequently to require close examination before the seams can be detected. The perfection of workmanship is astonishing to those who see the tools with which it is effected. They consist now of nothing more than a piece of iron tied to a stick, and used as an adze; this, with a gimlet, is all they have, and before they obtained their iron tools, they used adzes made of hard stone and fish-bone." The construction of the Fiji canoe, called *drua*, is described by Williams in great detail. A keel

or bottom board is laid in two or three pieces, carefully scarfed together. From this the sides are built up, without ribs, in a number of pieces varying from three to twenty feet. The edges of these pieces are fastened by ledges, tied together in the manner already described. A white pitch from the bread-fruit tree, prepared with an extract from the cocoa-nut kernel, is spread uniformly on both edges, and a fine strip of *masi* laid between. The binding of sennit with which the boards, or *canos*, as they are called, are stitched together is made tighter by small wooden wedges inserted between the binding and the wood, in opposite directions. The ribs seen in the interior of these canoes are not used to bring the planks into shape, but are the last things inserted, and are for uniting the deck more firmly with the body of the canoe. The carpenters in Fiji constitute a distinct class, and have chiefs of their own. The Tongan canoes were inferior to those of Fiji in Captain Cook's time, but they have since adopted Fiji patterns. The Tongans are better sailors than the Fijians. Wilkes describes a similar method of building vessels in the King's Mill Islands, but with varieties in the details of construction. "Each canoe has six or eight timbers in its construction; they are well modelled, built in frames, and have much sheer. The boards are cut from the cocoa-nut tree, from a few inches to six or eight feet long, and vary from five to seven inches in width. These are arranged as the planking of a vessel, and very neatly put together, being sewed with sennit. For the purpose of making them water-tight they use a slip of pandanus leaf, inserted as our coopers do in plugging a cask. They have evinced much ingenuity," he says, "in attaching the uprights to the flat timbers." It is difficult, without the aid of drawings, to understand exactly the peculiarities of this variety of construction, but he says they are secured so as to have all the motion of a double joint, which gives them ease, and comparative security in a seaway.

Turning now to the Malay Archipelago, Wallace speaks of ^{Asiatic Isles.} a Malay *prahu* which accompanied the vessel in which he sailed from Macassar to New Guinea, a distance of 1,000 miles, and says that it had not a single nail in it. The largest of these, he says, are from Macassar, and the Bugis countries of the Celebes and Boutong. Smaller ones sail from Ternate, Pidore, East Ceram, and Garam. The majority of these¹ he says, have stitched planks. No. 1268 of my collection is a model of a vessel employed in those seas. Wallace says that the inhabitants of Ké Island, west of New Guinea, are the best boat-builders in the archipelago, and several villages are constantly employed at the work. The planks here, as in

the Polynesian Islands, are all cut out of the solid wood, with a series of projecting ledges on their edges in the inside. But here we find an advance upon the Polynesian system, for the ledges of the planks are pegged to each other with wooden pegs. The planks, however, are still fastened to the ribs by means of rattans. The principles of construction are the same as in those of the Polynesian Islands, and the main support of the vessel still consists in the planks and their ledges, the ribs being a subsequent addition; for he says that after the first year the rattan-tied ribs are generally taken out and replaced by new ones, fitted to the planks and nailed, and the vessel then becomes equal to those of the best European workmanship. This constitutes a remarkable example of the persistency with which ancient customs are retained, when we find each vessel systematically constructed, in the first instance, upon the old system, and the improvement introduced in after years. I wonder whether any parallel to this could be found in a British arsenal. The psychical aspect of the proceeding seems not altogether un-English.

Southern
Asia.

Extending our researches northward, we find that Dampier, in 1686, mentions, in the Bashee Islands, the use of vessels in which the planks are fastened with wooden pins. On the Menan, in Siam, Turpin, in 1771, speaks of long, narrow boats, "in the construction of which neither nails nor iron are employed, the parts being fastened together with roots and twigs which withstand the destructive action of the water. They have the precaution," he says, "to insert between the planks a light, porous wood, which swells by being wet, and prevents the water from penetrating into the vessel. When they have not this wood, they rub the chinks by which the water enters with clay." In the India Museum there is a model of a very early form of vessel from Birmah, described as a trading vessel. The bottom is dug out, and the sides formed of planks laced together. A large stone is employed for an anchor. Here we see that an inferior description of craft has survived upon the rivers in the midst of a higher civilisation than that which has produced a superior class of vessel upon the seas.

India.

Turning westward, we have the surf-boat of Madras, called *massoola*, which, on account of its elasticity, is still used on the sea-shore. Its parts are stitched together in the manner represented in the model, No. 1267 of my collection. On the Malabar coast the ships of the Pardesy, who consisted of Arabs, Persians, and others who have settled in the kingdom of Malabar, are described by Barbosa in 1514. "They build ships," he says, "of 200 tons, which have keels like the Portuguese, but have no nails. They sew their planks with neat cords, very well

pitched, and the timber very good. Ten or twelve of these ships, laden with goods, sail every year in February for the Red Sea, some for Aden and some for Jeddah, the port of Mecca, where they sell their merchandise to others, who transmit it to Cairo, and thence to Alexandria. The ships return to Calicut between August and October of the same year." The earliest description we have of these vessels in this part of the world, in historic times, is in the account of the travels of two Mahomedans in the ninth century. In these travels it is related that there were people in the Gulf of Oman "who cross over to the islands that produce cocoa-nuts, taking with them their tools, and make ships out of it. With the bark they make the cordage to sew the planks together, and of the leaves they make sails; and having thus completed the vessel, they load it with cocoa-nuts and set sail." Marco Polo, at the commencement of the fourteenth century, confirms this, and says, speaking of the ships at Ormuz, in the Persian Gulf, "that they do not use nails, but wooden pins, and fasten them with threads made of the Indian nut. These threads endure the force of the water, and are not easily corrupted thereby. These ships have one mast, one sail, and one beam, and are covered with but one deck. They are not caulked with pitch, but with the oil and fat of fishes. When they cross to India they lose many ships, because the sea is very tempestuous, and they are not strengthened with iron." In the Red Sea, Father Lobo, in 1622, describes the vessels called *gelves*, which, he says, are made almost entirely of the cocoa-nut tree. The trunk is sawn into planks, the planks are sewn together with thread which is spun from the bark, and the sails are made of the leaves stitched together. They are more convenient, he says, than other vessels, because they will not split if thrown upon banks or against rocks.

We have now arrived in the region which is usually regarded Egypt. as the cradle of western civilisation, certainly the land in which western culture first began to put forth its strong shoots; and we must expect to find that the art of shipbuilding advanced in the same ratio as other trades. But, unlike the Phœnicians, the Egyptians confined their navigation chiefly to the Nile, and had an abhorrence of Typhon, as they termed the sea, because it swallowed up the great river, which, being the chief source of their prosperity, they regarded as a god.

Here it may be desirable to digress for one moment from the chain of continuity which we have been following, in order to say a few words about the most primitive form of vessel used on the Nile, viz. that mentioned by Isaiah as being of Ethiopian origin, and to which the mother of Moses entrusted her infant progeny—the vessel of bulrushes. What the cocoa-nut tree was

to the navigators on the eastern seas, the papyrus was to the Egyptians, and from it every part of the vessel—rope, planks, masts, and sails—was constructed. Adverting to the earliest and simplest of these papyrus vessels, the common use for a bundle of faggots, for such it was, is not, perhaps, one of those coincidences which, viewed by the light of modern culture, we should select as evidence of connection between distant lands. And yet there are peculiarities of form which make the bulrush float of the Egyptians worthy of comparison with those used in the rivers of Australia.

- Australia. The Australian float, as represented by a model in the British Museum, consisted of a bundle of bark and rushes, pointed and elevated at the ends, and bound round with girdles of the same material. The only vessel, according to Mr. Calder, used in
- Tasmania. Tasmania, on the west coast, is thus described by him in the "Journal of the Anthropological Institute": "It is of considerable size, something like a whale-boat, that is, pointed at both ends, but a solid structure, and the natives, in their aquatic adventures, sit on the top of it. It was generally made by the buoyant and soft, velvety bark of the swamp tree (*Melaleuca* sp.), and consisted of a multitude of small strips bound together."
- California. Professor Wilson says that the Californian canoe consists of a mere rude float, made of rushes, "in the form of a lashed-up hammock." A woodcut in Sir Gardner Wilkinson's "Ancient
- Egypt. Egypt," No. 399 of his work, represents three persons making one of these papyrus floats. It is the *baris*, or memphite bark, bound together with papyrus, spoken of by Lucan, and it is of precisely similar form to those above described, elevated and pointed at the ends, and the men are in the act of binding it round with girdles. This is the kind of boat in which Plutarch describes Isis going in search of the body of Osiris through the fenny country; a bark made of papyrus. Pliny attributes the origin of shipbuilding to these vessels—"Naves primum repertas in Egypto in Nilo ex papyro" (Lib. vii. cap. 56)—and speaks of their crossing the sea and visiting the Island of Taprobane (Ceylon, Sir G. Wilkinson); but it seems probable that he must refer to a more advanced form of vessel than the mere bulrush float.

The racial connection between the Australians and the Egyptians, first put forward by Professor Huxley, has hardly met with general acceptance as yet; but, startling as it at first sight appeared, the more we look into the evidence bearing upon it, the less improbable, to say the least, it becomes, when viewed by the light of comparative culture. I have already shown, in another place,* how closely some of the Australian

* 'Lectures on Primitive Warfare,' in the "Journal of the Royal United Service Institution."

weapons correspond to some of those still used on the Upper Nile, and the remarkable resemblance here pointed out in a class of vessels which might well have been used in passing short distances from island to island of the now submerged fragments of land that are supposed to have formerly existed in parts of the southern hemisphere, is, at least, worthy of attention amongst other evidence of the same kind that may be collected, although I fully admit that it is not of a character to stand alone. I will not exceed my province by attempting to defend the theory of the Australioid origin of the Egyptians on physical grounds, preferring to leave the defence of that theory in the hands of its author, who is so well able to support his own views; but I may take this opportunity of commenting on some remarks made by Professor Owen in his valuable paper, published in the last number of our journal, on the psychical evidence of connection between them and the black races of the southern hemisphere. Adverting to the fresco painting, in the British Museum, of the ancient Egyptian fowler, who holds in his hand a stick, which he is in the act of throwing at a flock of birds, I am inclined to agree with Professor Owen in thinking there is nothing in its shape to denote that it is a boomerang. Other figures, however, in Rosellini's "Egyptian Monuments," show the resemblance more clearly, and if these are not enough, the specimen of the weapon itself in the glass case in the Egyptian room of the British Museum proves the identity of the weapon beyond possibility of doubt. I have elsewhere stated at length,* that having made several fac-similes of this weapon from careful measurements, so as to obtain the exact size, form, and weight of the original, for the purpose of experiment, I found that it possessed all the properties of the Australian boomerang, rising in the air, and returning in some cases to within a few paces of the position from which it was thrown. In fact, it was easier to obtain the return flight from this weapon than from many varieties of the Australian boomerang, with which I experimented at the same time.

But supposing the ancient Egyptian to be "convicted of the boomerang," says the learned professor, "common sense repudiates the notion of the necessity of inheritance in relation to such operations." Against this I would urge, that the application of the general quality of common sense to the determination of questions of psychical connection between races so far removed from us as the Australians or the predecessors of the earliest Egyptian kings, is inconsistent with all that we know of the phenomena of mental evolution in man, seeing that there

* Address to the Anthropological Department at the Brighton meeting of the British Association, 1872.

must necessarily be many stages of disparity between them and any intelligent member of the Anthropological Institute to whose common sense this appeal was made.

If the common sense of the nineteenth century does not repudiate the fact that the steam engine, the electric telegraph, vaccination, free trade, and a thousand other contrivances for the benefit of our race, have sprung from special centres, and have been inherited, or otherwise received, by the highly cultivated races to which they have spread in modern times, neither would the common sense of the Australian or prehistoric Egyptian, after its kind, bar the likelihood of such contrivances as the boomerang, the parrying shield, or the baris having been handed from one savage people to another in a similar manner. Wherever two or three concurrent chains of connection, whether of race, language, or the arts, can be traced along the same channel, such evidence is admissible, and is indeed frequently the only evidence available in dealing with prehistoric times.

The peculiar, elevated ends of the papyrus floats are almost identical in form, but not in structure, with those now used in parts of India, especially on the Ganges; and the word *junk* is said to be related to *juncus*, a bulrush. Somewhat similar rafts, but flat, turned up in front but not behind, and called *tankwa*, are described by Lieut. Prideaux as being still used on Lake Tsana, in Soudan, and they are also used by the Shillooks, who make them of a wood as light as cork, called *ambads* (*Anemone mirabilis*). A paper by Mr. John Hogg, in the "Magazine of Natural History" of 1829, to which my attention has been kindly drawn by Mr. John Jeremiah, contains some useful information on the subject of Egyptian papyrus vessels. Debon describes and figures a very primitive kind of float of this sort, consisting of a bundle of straw or stalks, pointed and turned up in front, and says that the inhabitants of the Upper Nile go up and down the river upon it astride, the legs serving for oars; they use also a short double-bladed paddle. It is worthy of notice that the only other localities, that I am aware of, in which this double paddle is used, are the Sooloo Archipelago and among the Esquimaux. Bezzoni also describes the same kind of vessel. Mr. Hogg, in his paper, gives several illustrations of improved forms of these solid papyrus floats, derived from a mosaic pavement discovered in the Temple of Fortune at Præneste. From these it seems that they were bound round with thongs, pointed, and turned up and over at both ends. But Bruce, in 1790, describes more particularly the class of vessel used in Abyssinia in his time, called *tankwa*, or, as he writes it, *tancoa*, and says that it corresponds exactly to the description of Pliny (Pliny, "Nat. Hist.," Lib. xiii. cap. 2). His description appears possibly

to indicate that there was a separate line of development of hollow vessels derived from the flat raft. "A piece of acacia tree was put in the bottom to serve as a keel, to which plants were joined, being first sewed together, then gathered up at the ends and stern, and the ends of the plant tied fast there." (On Lake Tsâna they are only turned up in front: see above.) Bezzoni describes a similar kind of vessel on Lake Mœris, which seems clearly to be hollow. "The outer shell or hulk was composed of rough pieces of wood, scarcely joined, and fastened by four other pieces wrapped together by four more across, which formed the deck; no tar, no pitch, either inside or out, and the only preventive against the water coming in was a kind of weed which had settled in the joints of the wood." The only other locality, that I know of, in which similar vessels to these are used, is Formosa, a description of which is given by Mr. J. Thomson, F.R.G.S. ("The Straits of Malacca, Indo-China, and China," p. 304), for the sight of which I am indebted to Mr. L. Distant. He says: "We went ashore in a catamaran, a sort of raft made of poles of the largest species of bamboo. These poles are bent by fire, so as to impart a hollow shape to the raft, and are lashed together with rattan. There is not a nail used in the whole contrivance."

But the boats "woven of the papyrus," mentioned by Pliny, certainly refer to something more complex than the papyrus bundle above described. Lucan describes them as being sewn with bands of papyrus, and Herodotus describes them more fully. This passage has been variously translated by different authors, but the version given by Sir Gardner Wilkinson is as follows:—"They cut planks measuring about two cubits, and having arranged them like bricks, they build the boat in the following manner: they fasten the planks round firm, long pegs, and, after this, stretch over the surface a series of girths, *but without any ribs*, and the whole is bound *within* by bands of papyrus." The exact meaning of this is obscure; but I would suggest, that as the "fastening within" clearly shows it was not a solid structure, the more reasonable interpretation of it is by supposing that the planks, arranged in brick fashion, were fastened on the inside by cords, in the manner practised in the South Sea Islands and elsewhere. What the long pins were is uncertain; but as Sir Gardner Wilkinson says that the models found in the tombs show that ribs were used at a time probably subsequent to this, these pins may have been rudimentary ribs of some kind, and they also may have been "bound within" to the planks in the same manner. It seems not unlikely that these boats may have also been bound round on the outside to give them additional strength, after the manner of the papyrus

floats above described.* With this vessel, which was called *baris*, they used a sort of anchor, consisting of a stone with a hole in it, similar to one on a Burmese vessel, of which a model is in the India Museum.

The larger class of Egyptian vessels were of superior build, the planks being fastened with wooden pins and nails, and their construction somewhat similar to those still used on the Nile.

Area of
Western
Civilisation

Boat of the
Nydam
Moss.

Returning now to the link of the chain to which we have appended this digression, and carrying our inquiries further northward into the area of western civilisation, it is to be expected that we should lose all trace of this primitive mode of ship-building. The earliest vessels recorded in classical history were fastened with nails. In Homer's description of the vessel built by Odysseus, both nails and ribs were employed, and it had a round or a flat bottom (Smith's *Dic.*). No trace of any earlier form of ship has been discovered in Europe, until we come to the neighbourhood of the North Sea. Here, in the Nydam Moss, in Slesvic, in 1863, was discovered a large boat, seventy-seven feet long, ten feet ten inches broad in the middle, flat at the bottom, but higher and sharper at both ends, having a prow at both ends, like those described by Tacitus as having been built by the Suiones, who inhabited this country and Sweden in ancient times. This vessel, from its associated remains, has been attributed to the third century. The bottom consisted of a broad plank, about two feet broad in the middle, but diminishing in width towards each end. A small keel, eight inches broad and one deep, was carved on the under side of the plank, which corresponds to the bottom plank, which, in Africa and the Polynesian Islands, we have shown to be the vestige of the dug-out trunk. On to this bottom plank, five side planks, running the whole length of the vessel, were built, but they differed from those previously described in overlapping, being clinker-built, and attached to each other, not by strings or wooden pins, but by large iron bolts. The planks, however, resembled those of the southern hemisphere, in having clamps or ledges carved out of the solid on the inside; these ledges were perforated, and their position corresponded to rows of vertical ribs, to which, like the vessels at Ké Island, and elsewhere in the Pacific, they were *tied* by means of cords passing through corresponding holes in the ribs. Each rib was carved out of one piece, and, like those of Ké Island, in the Asiatic Archipelago, could easily have been taken out and replaced by

* Since writing this I have seen the illustration in Sir H. Rawlinson's note to this passage, in which he gives it as his opinion that this is the meaning and use to be ascribed to these pins; and he says that this system is still employed in Egypt, where they raise an extra bulwark above the gunwale. Rawlinson's "*Herodotus*," vol. ii. p. 132.

others after the vessel was completed. In short, the vessel represented the particular stage of development which may be described as plank-nailed and rib-tied, or which might be characterised as having removable ribs, differing in this respect from the more advanced system of modern times, in which the ribs, together with the keel, form a framework to which the planks are afterwards bent and fastened.

This mode of fastening the ribs to ledges carved out of the planking, Mr. Engelhardt, to whom we are indebted for the accurate drawings and description of this vessel,* remarks "is a most surprising fact, considering that the people who constructed the boat are proved by the associated remains to have been not only familiar with the use of iron, but to have been able to produce damascened sword-blades." But this fact, which, taken by itself, has been justly described as surprising, analogy leads us to account for by supposing these particular parts of the vessel to have been survivals from a universally prevalent primitive mode of fastening, the nearest southern representative of which, at the present time, is to be found in the Red Sea and adjoining oceans. Nor can there be any reason to doubt, I think, that this mode of constructing vessels may have been used in the intervening countries, which have been the scene of the rise of Western civilisation, since the earliest times, but which have now lost all trace of the most primitive phases of the art of ship-building.

Mr. Engelhardt, however, traces a connection between this ancient vessel, found in the Nydam Moss, and the Northland boats now used on the coast of Norway and the Shetland Isles, the peculiar rowlocks of which, and also the clincher-nails by which the sides are fastened, correspond very closely to those of the Nydam boat. Here also, and in Finland and Lapland, we find survivals of a still earlier mode of ship-building, corresponding to the more primitive plank-stitched vessels, before described, in so many places in the southern hemisphere. Regnard, in 1681, describes the Finland boats as being twelve feet long and three broad. "They are made of fir, and fastened together with the sinew of the reindeer; this makes them," he says, "so light that one man can carry one on his shoulders; others are fastened together with thread made of hemp, rubbed with glue, and their cords are of birch bark or the root of the fir." Outhier, in 1736, confirms this account of the manner in which they are sewn together, and says that it renders them very flexible, and suitable for passing cataracts, on account of their lightness, and because they do not break when they are cast against a rock. The Lapland sledge, called

* "Denmark in the Early Iron Age," by Conrad Engelhardt. 1866.

pulea is also described by Regnard as being of the same construction—boat-shaped, and the parts sewn together with the sinew of the reindeer, without a single nail. I have not as yet been able to trace this mode of fastening vessels continuously in Russia; but Bell, in 1719, says that the long, flat-bottomed barks used on the Volga for carrying salt have not a single iron nail in their whole fabric; and Atkinson describes vessels on the Tchoussowaia which are built without nails, but these are fastened with wooden pins.

Bark
Canoes.
Australia.

3. *Bark Canoes.*—The use of bark for canoes might have been suggested by the hollowed trunk; but, on the other hand, we find this material employed in Australia, where the hollowed trunk is not in general use. Bark is employed for a variety of purposes, such as clothing, materials for huts, and so forth. Some of the Australian shields are constructed of the bark of trees. The simplest form of canoe in Australia consists, as already mentioned, of a mere bundle of reeds and bark pointed at the ends. It is possible that the use of large pieces of bark in this manner may have suggested the employment of the bark alone. Belzoni (p. 62) mentions crossing to the island of Elephantine, on the Nile, in a ferry-boat which was made of branches of palm trees fastened together with cords, and covered on the outside with a mat pitched all over. The solid papyrus boats represented on the pavement at Præneste, before mentioned, have evidently some other substance on the outside of them; and Bruce imagines that the junks of the Red Sea were of papyrus, covered with leather.* The outer covering would prevent the water from soaking into the bundle of sticks, and thus rendering it less buoyant. Bark, if used in the same manner, would serve a like purpose, and thus suggest its use for canoe-building. Otherwise I am unable to conceive any way in which bark canoes can have originated, except by imitation of the dug-out canoe.

For crossing rivers, the Australian savage simply goes to the nearest stringy-bark tree, chops a circle round the tree at the foot, and another seven or eight feet higher, makes a longitudinal cut on each side, and strips off bark enough by this means to make two canoes. If he is only going to cross the river by himself, he simply ties the bark together at the ends, paddles across, and abandons the piece of bark on the other side, knowing that he can easily provide another. If it is to carry another besides himself, he stops up the tied ends with clay; but if it is to be permanently employed, he sews up the ends more carefully, and keeps it in shape by cross-pieces,

* 'On Vessels of Papyrus,' by John Hogg, Esq., M.A., F.L.S. "Magazine of Nat. Hist.," vol. ii. 1829.

thereby producing a vessel which closely resembles the bark canoe of North America ("Nat. Hist. of Man," Wood). I have not been able to trace the use of the bark canoe further north than Australia on this side of the world, probably owing to its being ill adapted for sea navigation; nor do I find representatives of it in any part of Europe or Africa, although bark is extensively used in the Polynesian Islands and elsewhere for other purposes.

It is the two continents of America which must be regarded as the home of the bark canoe.

The Fuegian canoe has been described by Wilkes, Pritchard, ^{South America.} and others. It is sewn with shreds of whalebone, sealskin, and twigs, and supported by a number of stretchers lashed to the gunwale; the joints are stopped with rushes, and, without, smeared with resin. In Guiana the canoe is made of the bark of the purple-heart tree, stripped off and tied together at the ends. The ends are stopped with clay, as with the Australians. This mode of caulking is not very effectual, however, and the water is sure to come in sooner or later.

The nature of the material does not admit of much variety in the construction; suffice it to say that it is in general use in North America, up to the Esquimaux frontier. Its value in these regions consists in the facility with which it is taken out of the water and carried over the numerous rapids that prevail in the North American rivers. The Algonquins were famous for the construction of them. Some carry only two people, but the *canot de maitre* was thirty-six feet in length, and required fourteen paddlers. Kalm, in 1747, gives a detailed account of the construction of them on the Hudson river, and Lahontan, in 1684, gives an equally detailed description of those used in Canada. The bark is peeled off the tree by means of hot water. They are very fragile, and every day some hole in the bottom has to be stopped with gum.

Mr. T. G. B. Lloyd, in an excellent paper descriptive of the Beothucs of Newfoundland, published in the last number of the Journal, has described the remarkable bark canoe of these people. Its form is different from any other canoe of this or any other region that I have heard of, the line of the gunwale rising in the middle, as well as at the ends, and the vessel being V-shaped in section, with a straight wooden keel at the bottom. Its form is so singular, that the only idea of continuity which I can set up for it is, that it must have been copied from some European child's paper boat, capable, by a single additional fold, of being converted into a cocked hat; the central pyramidal portion of the paper boat having given the form to the pyramidal sides of the Beothuc vessel. If this be rejected, then

its history has yet to be told, for no native tribe ever employed such a peculiar form unless by inheritance.

Nos. 1248 and 1249 of my collection are South American bark canoes; Nos. 1250 to 1252 are bark canoes from North America.

Wicker
Skin
Canoes.

4. *Canoes of wicker and skin.*—As we approach the Arctic regions, the dug-out and bark canoes are replaced by canoes of skin and wicker. As we have already seen, in the case of the bow, and other arts of savages, vegetable materials supply the wants of man in southern and equatorial regions, whilst animal materials supply their place in the north.

Esqui-
maux.

The origin of skin coverings has been already suggested when speaking of bark canoes. The accidental dropping of a skin bottle into the water might suggest the use of such vessels as a means of recovering the harpoon, which, as I have already shown elsewhere, was almost universally used for fishing in the earliest stages of culture. The Esquimaux lives with the harpoon and its attached bladder almost continually by his side. The Esquimaux *kayak*, Nos. 1253 and 1254 of my collection, in which he traverses the ocean, although admirable in its workmanship, and, like all the works of the Esquimaux, ingenious in construction, is in principle nothing more than a large, pointed bladder, similar to that which is lashed to the harpoon at its side; the man in this case occupying the opening which, in the bladder, is filled by the wooden pin that serves for a cork.

This is, I believe, a very primitive form of vessel, although there can be no doubt that many links in the history of its development have been lost. Unlike the dug-out canoe, such a fragile contrivance as the wicker canoe perishes quickly, and no direct evidence of its ancestry can be traced at the present time. It is only by means of survivals that we can build up the past history of its development; and these are, for the most part, wanting.

Inflated
Skins.

India.

The skin of an animal, flayed off the body with but one incision, served, as I have elsewhere shown, a variety of purposes: from it the bellows was derived, the bagpipes, water-vessels, and pouches of various kinds; and, filled with air, it served the purpose of a float. Steinitz, in his "History of the Ship," gives an illustration of an inflated ox skin, which in India is used to cross rivers, the owner riding upon the back of the animal and paddling with his hands, as if it had been a living ox.

Assyria.

In the Assyrian sculptures there are numerous illustrations representing men floating upon skins of this kind, which they clasp with the left hand, like the tree trunks, already mentioned,

that are used by the American Indians, and swim with the right. Layard says this manner of crossing rivers is still practised in Mesopotamia. He also describes the raft, composed of a number of such floats, made of the skins of sheep flayed off with as few incisions as possible; a square framework of poplar beams is placed over a number of these and tied together with osier and other twigs. The mouths of the sheep-skins are placed upwards, so that they can be opened and refilled by the raft-men. On these rafts the merchandise is floated down the river to Baghdad; the materials are then disposed of and the skins packed on mules, to return for another voyage. On the Nile similar rafts are used, the skins being supplanted by earthen pots, which, like the skins on the Euphrates, serve only a temporary purpose, and after the voyage down the river are disposed of in the bazars.

Mesopotamia.

Egypt.

This mode of floating upon skins I should conjecture to be of northern origin, and to be practised chiefly by nomadic races; but we find it employed on the Morbeya, in Morocco, by the Moors, who no doubt had it from the East. It is thus described by Lempriere, in 1789. A raft is formed of eight sheep-skins filled with air, and tied together with small cords; a few slender poles are laid over them, to which they are fastened, and that is the only means used at Buluane to convey travellers, with their baggage, over the river. As soon as the raft is loaded, a man strips, jumps into the water, and swims with one hand, whilst he pulls the raft after him with the other; another swims and pushes behind. This reminds us of the custom of the Gran Chaco Indians of South America, who, in crossing rivers, use a square boat or tub of bull's hide, called *pelota*. It is attached by a rope to a horse's tail, which swims in front, or the rope is taken in the mouth of an expert swimmer.

Morocco.

South America.

I have not traced the distribution of these rafts of inflated skins as continuously as, I have no doubt, they might be traced amongst nomadic and pastoral races, moving with their flocks and herds, the skins of which would be employed in this way; nor have I been able to trace the connection which, I have no doubt, existed between the inflated skin and the open curragh of wicker covered with skins. Where one is found, the other is often found with it. Herodotus describes the boats used by the people who came down the river to Babylon, and says they are constructed in Armenia, and in the parts above Assyria, thereby connecting them with the north. "The ribs of these vessels," he says, "are formed of willow boughs and branches, and covered externally with skin. They are round, like a shield, there being no distinction between head and stern. They line the bottom with reeds and straw, and taking on board merchandise, chiefly

Skin and Wicker Boats.

Euphrates.

Herodotus.

- palm wine, float down the stream. The boats have two oars, one to each man: one pulls and the other pushes. They are of different dimensions, some having a single ass on board and others several. On their arrival at Babylon the boatmen dispose of their goods, and offer for sale the ribs and straw; *they then load the asses with the skins* and return with them to Armenia, where they construct new boats"—just as is now done with the inflated skins of the rafts at Baghdad.
- Baghdad. In the Pictorial Bible an illustration is given from the Sassanian sculptures at Takht-i-Bostan of several of these round vessels, probably of wicker, covered with skins. In one of these the principal figure carries a composite bow, which, as I have elsewhere shown, is of northern origin. Mr. Layard discovered in Nimroud a sculpture in which one of these boats is represented. It is round, like those described by Herodotus; back and stern alike; carrying two people, one of whom pulls and the other pushes; and in the same sculpture are represented men swimming on the inflated sheep-skins. He says that these same round vessels are still used at Baghdad, built of boughs and timber covered with skins, over which bitumen is smeared to render it more water-tight. Hamilton also speaks of the same vessels at Baghdad, at the commencement of the eighteenth century.
- India. On the Cavery, in Mysore, Buchanan, in 1800, describes ferry-boats that are called *donies*, which are circular baskets covered with leather; but whether these vessels, like the composite bow used in the same region, can be traced to a northern origin I have not the means of determining, nor have I as yet sufficient materials to enable me to ascertain whether such vessels are employed in the north of Asia at the present time. What the inflated skin is to these circular vessels, the *kayak* is to the *baidar* of the Esquimaux. Throughout the whole region occupied by this race, these two kinds of vessels are used, differing only in minute varieties of detail in the different localities. According to Dr. King, whose valuable paper, "On the Industrial Arts of the Esquimaux," was published in the first volume of the "Journal of the Ethnological Society," the varieties of the *kayak* in the different localities consists merely in the elevation and shape of the rim of the hole in which the man sits. In Prince William Sound, on the N.W. coast, the *kayak* is frequently built with two or three holes to contain two or three men. The bow has two beaks, one of which turns up, according to Captain Cook, like the head of a violin, as represented in No. 1254 of my collection. This is also used in the Aleutian Isles. The meaning of this double beak I have not been able to ascertain. The *baidar* used on this coast has

also a double beak, as represented in No. 1255 of my collection.

In the British Museum there is a *kayak* with a single opening, from Behring Straits, which differs but little from another in the same museum from Greenland; the *kayak* of Greenland has a knob of ivory at each end to protect the sharp point. The *baidar* is used at Ochotsk and Kamtschatka, on the Asiatic coast, and all along the northern coast of America, eastward from Behring Strait. Models of both *baidar* and *kayak* are in the British Museum, from Kotzebue Sound. In Frobisher Strait, Frobisher, in 1577, says the boats are of two kinds of leather stretched on frames, the greater sort open, and carrying sixteen or twenty people (the *baidar*), and the lesser, to carry one man, covered over, except in one place where the man sits (the *kayak*). In Hudson's Straits and Greenland, where the larger vessels are called *ooniak*, they are flat-sided and flat-bottomed, about three feet high, and nearly square at the bow and stern, whereas this sort on the north-west coast is sometimes pointed at bow and stern. Kerguelen, in 1767, mentions both kinds in Greenland; and Kalm, in 1747, speaks of both, though not from personal observation, on the coast of Labrador. The Esquimaux canoe has been known to have drifted from Greenland across the north of Scotland, and has been picked up, with the man still alive in it, on the coast of Aberdeen (Wilson).

In Britain the *coracle* of osier, covered with skin, is mentioned by Cæsar, and in Britain, Gaul, and Italy by Lucan (A.D. 39-65). In Scotland, Bellenden, in the sixteenth century, speaks of the *currock* of wands, covered with bulls' hide, as being in use in the sixteenth century, and its representative is still used in the west of Ireland. Sir William Wilde says that, under the name of *curragh*, it is still made of leather, stretched over a wooden frame, on the Boyne, and in Aran, on the west coast, of light timber, covered with painted canvas, which has superseded the use of leather. I have seen these vessels at Dingle, on the south-west coast, where they go by the name of *nevôg*; they are there twenty-three feet in length by four in width, and one foot nine inches deep, made of laths, and covered with painted canvas; they are used, from Valentia, along the west coast as far as Galway. In the south they are larger than in the north, where they are called *curraghs*, and a single man can carry one on his back, as the ancient Briton did his *coracle*. Their continuance is caused by their cheapness, costing only six pounds when new. Here also they were, until recently, constructed of leather. They have a small triangular sail, and, like the most ancient

Behring Straits.

Greenland.

Ochotak and Kamtschatka.

Kotzebue Sound.

Frobisher Straits.

Hudson's Straits.

Greenland.

Labrador.

Britain.

Scotland.

Ireland.

forms of vessels, they are guided, when sailing, by means of oars, one on each side.

Rafts.

5. *Rafts*.—The trunks of trees, united by mutual attraction, as they floated down the stream, would suggest the idea of a raft. Rafts made of layers of reeds are used by the women of Australia, from which they dive to obtain mussel-shells. In New Guinea the catamaran, or small raft, formed of three planks lashed together with rattan, is the commonest vessel used. Others are larger, containing ten or twelve persons, and consist of three logs lashed together in five places, the centre log being the longest, and projecting at both ends.

Australia.

New
Guinea.

Madras.

Ganges.

Manilla.

Peru.

This is exactly like the catamaran used on the coast of Madras, a model of one of which is in the India Museum; they are also used on the Ganges, and in the Asiatic isles. At Manilla they are known by the name of *saraboas*; but the perfection of raft navigation is on the coast of Peru. Ulloa, in 1735, describes the *balzas* used on the Guayaquil, in Ecuador, and on the coast as far south as Paita. They are called by the Indians of the Guayaquil *jungadas*, and by the Darien Indians *puero*. They are made of a wood so light that a boy can easily carry a log a foot in diameter and three or four yards long. They are always made of an odd number of beams, like the New Guinea and Indian rafts, the longest and thickest in the centre, and the others lashed on each side. Some are seventy feet in length and twenty broad. When sailing, they are guided by a system of planks, called *guaras*, which are shoved down between the beams in different parts of the raft as they are wanted, the breadth of the plank being in the direction of the lines of the timbers. By means of these they are able to sail near the wind, and to luff up, bear away, and tack at pleasure. When a *guara* is put down in the fore part of the raft, it luffs up, and when in the hinder part, it bears away. This system of steering, he says, the Indians have learnt empirically, "their uncultivated minds never having examined into the *rationale* of the thing."

Brazil.

It was one of these vessels which Bartolomew Ruiz, pilot of the second expedition for the discovery of Peru, met with, and which so astonished the sailors, who had never before seen any vessel on the coast of America provided with a sail. Condamine speaks of the rafts in 1743, on the Chinchipe, in Peru. They are also used on the coast of Brazil, where they are also called *jungadas*, from which locality there is a model of one in the British Museum, and another in the Christy collection. Professor Wilson thinks it was by means of these vessels, driven off the coast of America westward, that the Polynesian and Malay islands were peopled; and this brings us to the consideration of

the peculiar class of vessel which is distributed over a continuous area in the Pacific and adjoining seas, viz. the outrigger canoe, which, I shall endeavour to show, was derived from the raft.

The sailing properties of the *balza*, or any other similar raft, must have been greatly impeded by the resistance offered to the water by the ends of its numerous beams. In order to diminish the resistance, the obvious remedy was to use only two beams, placed parallel to each other at a distance apart, with a platform, laid on cross-poles, between them.

Outrigger
Canoe.

Pacific
Ocean.

Double
Log Raft.

Of this kind we find a vessel used by the Tasmanians, and described by Mr. Bonwick, on the authority of Lieut. Jeffreys. The natives, he says, would select two good stems of trees and place them parallel to each other, but a couple of yards apart; cross-pieces of small size were laid on these, and secured to the trees by scraps of tough bark. A stronger cross timber, of greater thickness, was laid across the centre, and the whole was then covered with wicker-work. Such a float would be thirty feet long, and would hold from six to ten persons (H. Spencer, "Descriptive Sociology").

Tasmania

In Fiji, Williams describes a kind of vessel called *ulatoka*, a Fiji-raised platform floating on two logs, which must evidently be a vessel of the same description as that used in Tasmania.

From these two logs were derived the double canoe on the one hand, and the canoe with the outrigger on the other.

Origin.

A link between the catamaran and the outrigger canoe is seen, in a model in the India Museum, from Madras. It consists of the usual catamaran, already described, of three beams lashed together, the longest being in the centre, across which are attached, their ends extending on one side, long outrigger poles, to the extremities of which, parallel, and at some distance from the catamaran, is fastened an outrigger log, of smaller size and length, pointed at both ends, and boat-shaped, exactly like those used with the outrigger canoes to be hereafter described. When the art of hollowing out canoes was introduced, then one canoe and one log, or two canoes, were employed, as the case might be. This I consider to be a more natural sequence than to suppose the outrigger invented as a means of steadying the dug-out canoe.

Madras.

Develop-
ment.

The outrigger canoe, and its accompanying double canoe, is used over the whole of the Polynesian and Asiatic islands—from Easter Island on the east, to Ceylon and the Andamans on the west. Their varieties are also, in some cases, continuous; and I will endeavour to trace the distribution of each, commencing with the canoe with the single outrigger.

Distribu-
tion.

Single
Outrigger.

Towards the eastern and northern extremities of the Poly-

Poles
attached
directly to
Outrigger.

nesian Islands we find that the canoes have a single outrigger, and that the ends of the outrigger poles are attached directly to the outrigger log, instead of being connected with it by upright supports, as is the case elsewhere. As the outrigger is on a lower level than the line of the gunwales of the canoe, across which the other ends of the outrigger poles are lashed, they are generally curved downwards to meet the outrigger.

Distribu-
tion.

This is the form described by La Perouse in Easter Island. It is the same in the drawings of canoes from Marquesas, also in the one, figured by Wilkes, from Wytoohee or Disappointment Isle, in the Low Archipelago; and in the one from Tahiti, Society Isles; also in those of the Sandwich Isles and the King's Mill Isles; and it reappears again on the extreme west of the group in Ceylon, No. 1265.

Variation
of Hull.

But whilst this peculiarity appears to be constant in the above-mentioned region, the form of the body of the canoe differs in each group of islands. In the Marquesas the bow turns up very much, in the Sandwich Islands only slightly (No. 1264); in Disappointment Isle there is a projecting part before and behind, by which they step into it; in Tahiti they have a similar projection over the stern only, which is used for a similar purpose.

Outrigger
attached by
Uprights.

To the westward of these, in a group extending over the centre of the region in question, all the outriggers that I have seen described, either by means of models or drawings, have upright supports on the upper side, and on these the outrigger poles rest, so as to be on the level of the line of the gunwales. This is the case in Nuie or Savage Island, in Samoa (No. 1262), the Caroline Isles, in Bowditch Island, one of the Union group, in Tonga and Fiji, in New Guinea, in the Louisiade Archipelago, and in North Australia.

Distribu-
tion.

Cypræa
ovula
Shells.

Another peculiarity in this central region deserves notice. The ends of the canoe are covered with a deck extending over about one-third of its length fore and aft, and on this deck there is a row of upright pegs, carved out of the same piece as the deck, and running down the centre of it. Each peg is surmounted by a white *Cypræa ovula* shell tied on. The origin and meaning of this custom is unknown, but it was probably adopted originally as insignia of the rank of the owner. Its distribution is limited to a group of islands lying between about the 10th and 20th parallel of south latitude, and 170° and 180° west longitude. Cook, in 1773, speaks of it in the Friendly Isles; and Wilkes, in 1838, mentions it in Samoa, Fiji, and Bowditch Isle. The canoes of the Solomon Isles and other islands are, however, also ornamented with shells in different parts.

Distribu-
tion.

The canoe with the single outrigger is also used in Garret Dennis Island, which is described by Dampier, in 1686; in the Ladrões, by Pigafetta, 1519; in the Pelew Islands, in Borneo, in Ceylon, in the Nicobar and Andaman Islands.

Single
Outrigger.

In King's Mill and the Caroline Islands, to the north, the outrigger is somewhat smaller than elsewhere, its length not exceeding one-third of the length of the canoe. In the adjoining groups of the King's Mill and Ladrone Islands we have a variety of this vessel in which the canoe, on the outrigger side, is nearly flat, having a belly only on the opposite side. This is described by Wilkes in 1838, and Dampier in 1686.

Flat Sides.

The double canoe represents a variety in which both logs of the double-logged raft have developed into canoes. The two canoes are placed side by side, at a little distance apart, and transverse spars lashed across the gunwales of both, a platform being built upon the cross spars (No. 1266).

Double
Canoe.

Double canoes of this kind were used in New Zealand formerly, also in New Caledonia. Mr. Baines mentions it in North Australia, but I am not aware that it is used in New Guinea. Cook speaks of it in the Friendly Isles, Wilkes in Fiji. It was formerly used in Samoa, but Wilkes says it has been discontinued, and the single outrigger only is now used; in Tahiti; in the Low Archipelago, the inhabitants of which group are very expert sailors, steering by the stars, and seldom making any material error; in the Sandwich Isles; also in Ceylon, where it is called a *paddy boat*; in Birmah and in some of the Indian rivers; at Mosapore, where it goes by the name of *langardy*; and in Cochin, on the southern portion of the Malabar coast, where it is employed as a ferry-boat. It also appears, by a model in the India Museum, that it is used as high up as Patna, on the Ganges.

Distribu-
tion.

In Fiji we find a connecting link between the double canoe and the canoe with the single outrigger. Here the outrigger consists of a boat, similar in construction to the large one to which it is attached, but smaller, and connected with the platform between them by upright supports.

Link.

Contrivances for sailing near the wind with the single outrigger canoe have led to the introduction of several other varieties of this class of vessel. It is necessary that the outrigger should always be on the windward side. The outrigger acts as a weight on the windward side, to prevent the narrow canoe from being blown over on the opposite side. When it blows very hard, the men run out on to the outrigger, to give it the additional weight of their bodies. Wilkes says that whenever the outrigger gets to the leeward side, there is almost

Sailing pe-
culiarities.

Sailing
Fore and
Aft.

invariably an upset. The outrigger probably is pressed too deeply into the water, and meeting with too much resistance, breaks the poles. To meet this difficulty both the canoe and outrigger are, in some parts, made pointed at both ends. When they wish to tack, instead of luffing and coming about, they bear away, until the vessel gets on the opposite quarter, and then, by shifting the sail, they sail away again stern first. This system is pursued in Fiji, in parts of New Guinea, and northward, in King's Mill Islands (Wilkes).

Distribu-
tion.

Double
Outrigger.

Distribu-
tion.

Weather
Platform.

Another mode of meeting this difficulty consists in having two outriggers, one on each side. This is employed in the Louisiade Archipelago (No. 1260), in parts of New Guinea, and to the north, in the Sooloo Archipelago. Yet another method remains to be described. In Samoa the canoes are built with bow and stern, and the outrigger is pointed towards the fore part only. As these vessels can only sail one way, the outrigger, in tacking, must necessarily be sometimes on the lee-ward side; to meet this, they rig out a platform corresponding to the outrigger platform on the opposite side: this, for distinction's sake, we may term a *weather platform*. It has no outrigger log, nor does it touch the water, but when the wind blows so heavily as to press the outrigger down on the lee side, they run out on the weather platform, and counterbalance the effect of the wind by their weight. This contrivance is used in some parts of New Guinea, where, it may be observed, the varieties of the outrigger canoe are more numerous than in most of the other islands. It is also used in Solomon Isles, where the weather platform is of the same width as the outrigger platform, and probably in some of the other islands to the north.

Distribu-
tion.

Double
Weather
Platform.

Finally we have, in the Asiatic Archipelago, a contrivance which may be said to be derived partly from the double outrigger, and partly from the weather platform last described. In proportion as the simple dug-out canoe began to be converted into a built-up vessel, and to acquire greater beam, they began to depend less and less on the support of the outrigger. The double outrigger necessarily presented considerable resistance to the water, but the vessel was still too narrow to sail by itself. A weather platform had, however, been found sufficient to balance the vessel on one side, and the next step was to knock off the outrigger log on the other side, thereby converting the outrigger platform into a weather platform, the two platforms projecting one on each side of the vessel, on the level of the gunwales, without touching the water, and thereby acting on the principle of the balancing-pole of a tight-rope dancer, whilst the resistance to the water was by this means confined to that

of the hull of the vessel itself. These double weather platform boats were also found more convenient in inland waters, in the canals in Manilla, and elsewhere.

De Guines, in 1796, mentions a contrivance of this sort in the Philippines, but from the account, it is not quite clear whether he refers to a double weather platform, or a vessel with an outrigger and a weather platform. He says: "The boats at Manilla are very sharply built, and furnished with yards, which serve as *balances*, on the windward side of which, when the wind blows hard, the sailors place themselves to counterpoise the effect of the wind on the sails. This contrivance does not, however, always ensure safety, for at times the bamboos which form the balance break, in which case the boat founders and the crew are lost." Dampier, however, in 1686, clearly speaks of the double weather platform at Manilla. He says: "The difference between these Manilla boats and those at Guam, in the Ladrões, is that, whereas at Guam there is a little boat, fastened to the outriggers, that lies in the water, the beams or bamboos here are fastened transverse-wise to the outlayers on each side, and touch not the water like boats, but one, three, or four feet above the water, and serve for the canoe-men to sit and row and paddle upon." He says, that "when the vessel reels, the ends of the platform dip into the water, and the vessel rights itself." Still further north, at Rangoon, on the Irrawaddy, we find the same contrivance described by Simes, in 1800. He says: "The boats are long and narrow, sixty feet in length, and not more than twelve in the widest place; they require a good deal of ballast, and would have been in constant danger of upsetting had they not been provided with outriggers which, composed of thin boards, or oftener of buoyant bamboos, make a platform that extends horizontally six or seven feet on the outside of the boat from stem to stern. Thus secure," he says, "the vessel can incline no further than until the platform touches the surface of the water, when she immediately rights; on this stage the boatmen ply their oars."

This constitutes one out of many points of evidence that might be mentioned, serving to show that the arts and culture of the Birmese, and of all this part of Asia, have been derived from the Malay Archipelago more probably than the reverse.

The outrigger canoe itself has never, I believe, been known on the Irrawaddy within the memory of man, but, as already seen, it is used in the Nicobar and Andaman Isles and on the coast to the south.

These outriggers, or balancing platforms, appear gradually to have diminished in size as the vessel increased in beam, and there can be little doubt that the rude stages or balconies out-

side the gunwales represented in the models of many of the larger vessels used in these seas are the last vestiges of the outrigger. No. 1278 is an example of this.

Results.

All the various items of evidence which I have collected, and endeavoured to elucidate by means of survivals, whether in relation to modes of navigation or other branches of industry, appear to me to tend towards establishing a gradual development of culture as we advance northward. Although Buddhism and its concomitant civilisation may have come from the north, there has been an earlier and prehistoric flow of culture in the opposite direction—northward—from the primæval and now submerged cradle of the human family in the southern hemisphere. This, I venture to think, will establish itself more and more clearly, in proportion as we divest ourselves of the numerous errors which have arisen from our acceptance of the Noachian deluge as a universal catastrophe.

Ocean Highway.

As human culture developed northward from the equator toward the 40th parallel of latitude, civilisation began to bud out in Egypt, India, and China, and a great highway of nations was established by means of ships along the southern margin of the land, from China to the Red Sea.

Distribution of other Ship Forms.

Oculus.

Along this ocean highway may be traced many connections in ship forms which have survived from the earliest times. The *oculus*, which, on the sacred boats of the Egyptians, represented the eye of Osiris guiding the mummy of the departed across the sacred lake, is still seen eastward—in India and China—converted into an ornamental device, whilst westward it lived through the period of the Roman and Græcian *biremes* and *triremes*, and has survived to this day on the Maltese rowing-boats and the *æbecque* of Calabria, or has been converted into a hawser-hole in modern European craft. The function of the rudder—which in the primitive vessels of the southern world is still performed by the paddlers, whilst paddling with their faces to the prow—as sails began to be introduced, was confided to the rearmost oars. In some of the Egyptian sculptures the three hindermost rowers on each side are seen steering the vessel with their oars. Ultimately one greatly developed oar on each side of the stern performed this duty, the *loom* of which was attached to an upright beam on the deck, as is still the case in some parts of India. In some of the larger Malay *prahaws* there are openings or windows in the stern, considerably below the deck, by which the steersmen have access to two large rudders, one on each side, each rudder being the vestige of a side oar.

Rudder.

Throughout the Polynesian Islands the steering is performed with either one or two greatly developed paddles.

Both in the rudder of the Egyptian sculptures and the *gubernaculum* of the Roman vessels, we see the transition from the large double oar, one on each side, to the single oar at the stern. The ship of Ptolemaeus Philopator had four rudders, each thirty cubits in length (Smith's *Dic.*). The Chinese and Japanese rudder is but a modification of the oar, worked through large holes in the stern of the vessel, which large holes, in the case of the Japanese, owe their preservation to the orders of the Tycoon, who caused them to be retained in all his vessels, in order to prevent his subjects from venturing far to sea. The *buccina*, or shell trumpet, which is used especially on board all canoes in the Pacific, from the coast of Peru to Ceylon, is represented, together with the *gubernaculum*, in the hands of Tritons in Roman sculptures (Smith's *Dic.*, *Navis*), and the shell form of which was preserved in its metallic representatives. Buccina.

The sail, in its simplest form, consists of a triangular mat, with bamboos lashed to the two longer sides. In New Guinea and some of the other islands, this sail, which is here seen in its simplest form, is simply put up on deck, with the apex downwards and the broad end up, and kept up by stays fore and aft. When a separate mast was introduced this sail was hauled up by a halyard attached to one of the bamboos, at the distance of about one-fifth of its length from the broad end, the apex of the bamboo-edged mat being fastened forward by means of a tack. By taking away the lower bamboo the sail became the *lateen* sail of the Malay pirate *proa*, the singular resemblance of which to that of the Maltese galley of the eighteenth century, a resemblance shared by all other parts of the two vessels, may be seen by two models placed side by side in the Royal United Service Institution. Professor Wilson observes that the use of the sail appears to be almost unknown on either continent of America, and the surprise of the Spaniards on first seeing one used on board a Peruvian *balza* arose from this known peculiarity of early American navigation. Lahontan, however, in 1684, says that the Canadian bark canoes, though usually propelled by paddles, sometimes carried a small sail. He does not, however, say whether the knowledge of these has been derived from Europeans. Mr. Lloyd also mentions small sails used with bark canoes in Newfoundland. Sail.

The *crow's nest*, which in the Egyptian vessels served to contain a slinger or an archer at the top of the mast, and which is also represented in the Assyrian sculptures, was still used for the same purpose in Europe in the fifteenth century, was modified in the sixteenth century, and became the mast-head so well known to midshipmen in our own time. The two raised platforms, which in the Egyptian vessels served to contain the man Crow's Nest.

Prora and
Puppis.

Aplustre.

Argument
and conclu-
sion.

with the fathoming pole in the fore part, and the steersman behind, became the *prora* and the *puppis* of the Romans, and the *forecastle* and *poop* of modern European vessels. The *aplustre*, which, in the form of a lotus, ornamented the stern of the Egyptian war craft, gave the form to the *aplustre* of the Greeks and Romans, and may still be seen on the stern of the Birmese war-boats at the present time.

All these numerous examples serve to show that where civilisation has advanced the forms have been gradually changed; where, on the other hand, it has not advanced, they have remained unchanged. Sir Gardner Wilkinson and others have pointed out the striking resemblance between the boats of the ancient Egyptians and those of modern India. "The form of the stern, the principle and construction of the rudder, the cabins, the square sail, the copper eye on each side of the head, the line of small squares at the side, like false windows, and the shape of the oars of boats used on the Ganges, forcibly call to mind," he says, "those of the Nile, represented in the paintings of the Theban tombs." We have also seen that the inflated sheep-skin still serves to transport the Mesopotamian peasant across the Euphrates, as it did when Nimroud was a thriving city. The skin and wicker, tub-shaped vessels still float down the Euphrates with their cargoes to Baghdad, are broken up, and the skins carried up the river again on mules, as they were in the time of Herodotus, upwards of 2,000 years ago. What is there to prevent our believing that the primitive vessels which we have been describing in the southern hemisphere, the representatives of some of which have been discovered in river deposits of the stone age in Europe, may have been in use in the countries in which they are now found as long and longer—far longer?

What reason is there to doubt that the rude bark-float of the Australian, the Tasmanian, and the Ethiopian; the catamaran of the Papuan; the dug-out of the New Zealander; the built-up canoe of the Samoan; and the improved-ribbed vessel of the Ké islander, are survivals representing successive stages in the development of the art of ship-building, not lapses to ruder methods of construction, as the result of degradation; that each stage supplies us with examples of what was at one time the perfection of the art inconceivable ages ago? Some, as we have seen, especially the more primitive kinds, spread nearly all over the world, whilst others had a more limited area of distribution. Taken together, they enable us to trace back the history of ship-building from the time of the earliest Egyptian sculptures to the commencement of the art.

Nor does the interest of this inquiry confine itself to the

development of ship-building. As affecting the means of locomotion, it throws light on the development of other branches of culture in early times. For even if we set aside exceptional instances in which individual canoes have been driven away to great distances—such as the case in which an Esquimaux in his kayak was picked up off the coast of Aberdeen, or that of a Chinese junk having been wrecked on the north-west coast of America, which might or might not have produced permanent results—and confine ourselves to those cases in which the distribution of like forms of vessels proves that there must probably have been frequent communication between shore and shore; and if we further assume, as I propose to do, that the existing means of communication in the Pacific in a great measure represents the amount of intercourse that took place across the sea in prehistoric times, that is to say, in times prior to the earliest Egyptian sculptures, we find no difficulty in accounting, by this means, for the striking similarity observable in the arts and ideas of savages in distant lands; for not only have these vessels been the means of conveying from place to place the material form of implements, such as celts, stone knives, and so forth, which, being imperishable, have been handed down to us unchanged, and the forms of which we know to have spread over large geographic areas, but also each voyage has conveyed a boat-load of ideas, of which no material record remains, in the shape of myths, religions, and superstitions, which have been emptied out upon the sea-shore, to seek affinity with other chatter that was indigenous to the place.

Thus, by means of intercommunication, no less than by spontaneous development, have been formed those numerous combinations which so greatly puzzle the student of culture at the present time.

DISCUSSION.

Professor T. McK. HUGHES, after mentioning several early historical notices of long voyages made by Phœnicians, Greeks, and others, pointed out that the more advanced form of boat, in which long voyages could be made, would be most widely known; whilst the ruder forms, determined by the requirements and capabilities of different localities, would probably be local. The coracle, for instance, had held its own in Wales from the time of the Romans, from the facility with which it can be made, carried from pool to pool, and used in netting.

Mr. T. G. B. LLOYD described a skin canoe which he had had built by the Indians during a trip across the Island of Newfoundland in the fall of the present year. A framework of green spruce and "var" (Balsam fir), bound together with spruce roots, formed the inside of the canoe, around which three shaved skins of the Caribou

deer were tightly stretched. The skins were sewn together with sinews taken from the back of a deer. When finished, the canoe was about seventeen feet long and four feet wide amidships, and in shape resembled a "flat" or American "dory," rather than a birch-bark canoe. It was found capable of carrying a load of about 600 or 700 pounds, and proved a serviceable craft for running rapids and navigating the lakes of the interior of the island. The employment of such is confined in Newfoundland to the Micmac Indians, who, during their hunting and furring expeditions, construct them at the waterside, use them during the season, and when done with, remove the skins, which they make use of, if in a sufficiently good state of preservation, for the manufacture of mocassins and babiche for snow-shoes.

Mr. PARK HARRISON said that Colonel Lane Fox had shown conclusively how the outrigger arose, and also clearly defined the area where it was used. It did not, however, appear to him to be equally certain that the improvements in boat-building in the Indian Archipelago had been developed without foreign influence. There was a great mixture of races in the islands, owing, probably, to early commerce. Amongst others, the Arabs, it is known, reached Sumatra and Java several hundred years ago. Vessels formed of planks sewn together with sennit may consequently have been introduced by them, and also into Ceylon and the coasts of India, where they are still found side by side with the canoes and rafts of non-seagoing people. A curious story is related by an Arab writer of the ninth century, that a wreck had been found some time previously at the entrance of the Mediterranean Sea, near the Pillars of Hercules, which, from its construction, led to the conclusion that it must have circumnavigated Africa. A certain amount of Phœnician influence might also have to be taken into account, if, as the written characters in Sumatra seem to indicate, some of that race arrived there.

Mr. BLACKMORE and the PRESIDENT also spoke on the paper.

Colonel A. LANE FOX, in reply to some remarks by the President, said that he had considered the possibility of the outrigger having been invented for the purpose of preventing the long, narrow, dug-out canoe from upsetting. That was undoubtedly its object. But viewed as an invention, he thought it was too great a step for savages, and contrary to all analogy of savage progress to suppose that it was introduced suddenly. It was a very clumsy contrivance, and one that would hardly have suggested itself had not their ideas been led up to it by contrivances previously in use. Such a sequence of ideas he found to exist in the varieties of the catamaran or raft, as he had already shown. Nearly all over the world savages used the long, narrow, dug-out canoe, specially liable to upset whenever it was employed; and yet the outrigger was unknown in either continent of America, in Europe, Asia, or Africa. It was confined to the area specified, which was limited by Ceylon on the west and Easter Island on the east. Nor was this all. Within this area there were varieties, and the distribution of these

varieties was also continuous. There could be nothing, he thought, in the nature of the trees used which could necessitate the direct attachment of the outrigger to the outrigger poles on the extreme east and west of this area, whilst in the central region it was attached to them by means of upright supports. So also the variety with one flat side; the custom of using a large shell attached to upright pegs upon the deck; the variety with the double outrigger; the weather platform, the double weather platform without outrigger logs—all these have continuous areas of distribution, which could not have been influenced exclusively by the nature of the materials employed, though, of course, no variety could prevail in places where the materials were unsuitable. Besides which, the several varieties showed a connected sequence of ideas which had spread over the region in question, and this, he thought, was sufficient to prove absolutely that a connection of idea had existed. With respect to what had been said about the importance of weighing carefully the dates of the several contrivances referred to in the paper, the question of date was precisely the problem to be solved. We had few, if any, direct data to go upon. We knew that little or no change had taken place between the time of Cook and the time of Wilkes, but this gave us a very short base to work upon. Analogy only served to point out the direction in which evidence had to be looked for. The nature of survivals and root-indicating branches, thanks to the writings of Mr. Tylor and others, was now beginning to be understood. We knew that on the Euphrates the same tub-shaped, wicker, and skin vessels are now used as they were 2,000 years ago, and the forms of Egypt have survived in India. His argument was that the forms of these savage vessels may have survived from a still earlier period. But until geologists give us some clue to the antiquity of man in the southern hemisphere, and the state of his arts, we can have no direct evidence as to the sequence of the forms.

A communication from Mr. L. Adam respecting the Congrès International des Américanistes was read, and the meeting then separated.

JANUARY 12TH, 1875.

Professor BUSK, F.R.S., *President, in the Chair.*

The minutes of the previous meeting were confirmed.

The following presents were announced, and the thanks of the meeting were voted to the donors thereof:—

FOR THE LIBRARY.

From the REV. JAMES GRAVES.—*Journal of the Royal Historical and Archæological Association of Ireland.* No. 19, July, 1874.

From the EDITOR.—*Revue Scientifique*. Nos. 26, 27, and 28, 1874-5.

From the EDITOR.—*Cosmos*, di Guido Cora. Vol. II. Nos. 4 and 5.

From the SOCIETY.—Proceedings of the Royal Society. Vol. XXIII. No. 156.

From the EDITOR.—Nature (to date).

From the SOCIETY.—Journal of the Asiatic Society of Bengal. Part II. No. 2; Proceedings, ditto, No. 8, 1874.

From the AUTHOR.—Statistics by Inter-comparison, with Remarks on the Law of Frequency of Error. By Francis Galton.

From HYDE CLARKE, Esq.—Primer of the Hausa Language; by the Rev. J. F. Schon. Hausa Vocabulary. Geography in the Zulu.

The following paper was read by the author:—

ANTHROPOLOGY of PREHISTORIC PERU. By THOMAS J. HUTCHINSON, F.R.G.S., F.S.A., M.A.I., late Her Majesty's Consul for Callao. [With Plates xxviii., xxix., and xxx.*]

DURING many of my rambles amongst Peruvian ruins, whether of burial mounds, fortresses, or old cities, I found myself frequently cogitating on the idea of Mr. Baldwin,† that “the aboriginal South Americans were the oldest people on this continent.” It was impossible for me not to agree in such an opinion. And further contemplation of the architecture which we see along the seaboard of Peru inclines me to another item of his faith, namely, that “the civilised life of the ancient Mexicans and Central Americans may have had its original beginning somewhere in South America (most probably in Peru), as they seem more closely related to the ancient South Americans than to the wild Indians north of the Mexican border.” The term “New World,” applied to America, as opposed to “Old World” (meaning Europe, Asia, and Africa), I believe to be somewhat of a misnomer. As Professor Wilson observes‡: “How old are some of these things of the New World is as yet but very partially appreciated, even by some who seek to antedate the birth of the red man before the first Adam was placed in his eastern garden, or ‘there went up a mist from the earth and watered the whole face of the ground.’”

But the anthropology of Peru in prehistoric times is still

* The blocks for these illustrations, from the author's work, entitled “Two Years in Peru,” have been kindly lent by the publishers, Messrs. Sampson Low, & Co.

† “Ancient America.”

‡ “Prehistoric Man” (vol. i. p. 31), by Daniel Wilson, LL.D. Macmillan & Co., 1862.

very problematical. I may premise that I have already mentioned in my last work of "Two Years in Peru," how little reliable information can as yet be gained as to the arts and knowledge of these early Peruvians. From Polo de Ondegardo, A.D. 1550, and the Inca Garcillaso de la Vega, A.D. 1609, down to Mariano Felipe Paz Soldan in 1868, they all harp on the same string; of which the burden is, that about seven centuries ago (or when William the Conqueror came to England) the first Inca, Manco Capac, and the woman, Mama Oellee, were created by the Sun—nursed in Lake Titicaca, the cradle of the Incas—and founded a new dynasty in Peru. Let us believe the Incas ever were powerful—great makers of roads, or constructors of grand aqueducts (both of which, I may add, *en parenthèse*, were, to my belief, fashioned before ever there was an Inca in the land)—or anything that Spanish chroniclers of the Munchausen type wish to describe them, it appears very evident they were not a race that ever could have held permanent sway in Peru. From the first Inca, Manco Capac, to the last, Atahualpa, their marital relations were all with their own sisters; and it is, therefore, no wonder that, being presumedly in their physical decadence, they were ignominiously thrashed by the Spaniards under Pizarro. These last-mentioned brave soldiers (we are told by the Secretary of the conqueror) knocked them off, in the butchery of Caxamarca, at the rate of four men and a fraction every minute! for Señor Xeres wants us to believe that 160 Spaniards killed 20,000 of the Inca soldiers in half an hour!

By the memoir of the lineage of the Incas, according to Polo de Ondegardo,* it appears there were mercenary soldiers in the old times, as well as in the modern; for we have records of the period when the Cañas and Canches tribes were paid by the Incas to go to war with their neighbours—to be, in fact, hired combatants—"not as vassals following their lords." Polo seems somewhat dogmatic in laying down too many things (in his own words) "to be taken for granted," and speaking of incidents that *must* be understood, without any assignable reason but the simple *dictum*. The records of the Incas do not go farther back, however, than from three hundred and fifty to four hundred years from the first coming of the Spaniards with Pizarro. The softness of the Quichua language may be appreciated when we are told that the name for the god of the Incas, which they used in their prayers, was Pachayachachic Atiesi Uiracocha. One of the authors in the work mentioned in the

* "Rites and Laws of the Incas" (published by the Hakluyt Society in 1873), p. 152.

foot-note is named Juan de Santa Cruz Pachacuti Yamqui Salcamayhua. So that I almost feel myself with the

“——— Verbum Græcum
Spermagoraio-Lekithola-Kanopolides.
Words that should only be used on holidays,
When one has nothing else to do.”

That the temple erected at Cuzco by the Incas (worshippers of the sun, and reputed destroyers of false gods) was ever done so by these people, appears to me contradicted by the fact that its walls represented serpents carved in relief upon the stones. Besides this, we find in the Huarochiri fables—fables they must be, truly—accounts of red lions; of deer eating the people—the first carnivora in the deer tribe of which I ever heard; llamas and foxes engaged in discussions; llamas of blue, red, yellow, and other colours. But these may be taken “for granted” by the following explanation of the author:—

“It is certain that there were no inhabitants in this land until many days and years after the deluge, for it was necessary that the descendants of those who were saved in the Ark should spread themselves to the New World, and it is certain that they cannot have handed down these fables to their sons. It follows that the Devil, who has been so great a Lord over these people, made them believe in lies, and in the matter of the deluge told them about the Llama that spoke, the Fox that wetted its tail, and the other stories. If any Indian would object that, if there was no *yunca** in Parracaca, how is it that there are remains and ruins of farms and cultivation? I reply that, God permitting, the Devil could easily make those Terraces to deceive those who, leaving the natural light of God, served him.”

You will, therefore, not be surprised at the *Athenæum*,† in its critique of this work, speaking of these as “sickly legends,” and as “proofs of the infinite depth of imbecility and vileness to which it is possible for human nature to descend.” Moreover, the account of the false gods of Huarochiri, by Dr. Francisco de Axila, is not only nasty and clumsy, but so full of indecencies that I would be sorry to put it in the hands of any lady reader, or of any member of the Anthropological Institute.

John of the Holy Cross—Salcamayhua, to abbreviate his name—writes his memoir with a genealogical history of his ancestry prefixed, and with all the bitterness of a rabid convert from the ceremonies of heathenism. No doubt when he wrote he was struggling out of the bonds of these ancient holders of Peru, namely, “the Demons and Devils”; but as an account of

* The term *yunca* (Quichua word) means “heat,” and was applied to the sandy and sunburnt coast district, where, nevertheless, the crops were said “to sprout, grow, and ripen in five (5) days after being sown”!!!

† Vide *Athenæum*, 22nd November, 1873.

the antiquities of the country, his book is simply a delusion. He gives the mawkish legend intermingled with words, almost unpronounceable, about the glorious apostle, St. Thomas, of whom we are told*—"Some years after the devils called *Hapiññus Achacallas* had been driven out of the land, there arrived in these kingdoms of *Itahuantin-suyu*† a bearded man, of middle height, with long hair, and in a rather long shirt. They say that he was somewhat past his prime, for he already had grey hairs, and he was lean. He travelled with his staff, teaching the natives with much love, and calling them all his sons and daughters. As he went through all the land he performed many miracles; the sick were healed by his touch. He spoke all languages better than the natives. They called him *Tonapa*, or *Tarapaca*—*Tarapaca* means an eagle—*Uiracocharapacha yachipachan*, or *Pachaccan*; this means the servant, and *Uicchaycamayoc* means a preacher, and *bicchaycamayoc cunacuycamayoc*. Although he preached, the people did not listen, for they thought little of him. He was called *Tonapa Uiracocha nipacaeahan*; but "was he not the glorious apostle St. Thomas?"

Besides this, Mr. Holy Cross makes mention of not a few nasty things, and of a battle at which one of the Incas, named Tupac Ranchiri, who was a priest of the *Ocuricancha*, set some stones in a row, and fastened shields and clubs to them, so that they might seem at a distance like rows of soldiers sitting down. The prince, looking out for succour from his father, *Uira-cocha Yupanqui Inca*, saw these rows from a distance, and cried out to the supposed soldiers to rise, as his men were on the point of yielding. The Chancas continued the attack with great fury, and then the prince saw that the stones had become men, who rose up and fought so as that the prince gained the victory. In one part of the memoir, to cross a river‡ we are informed that "some audacious monkeys belonging to a chief of the Manares went over and secured ropes and cables, after overcoming great difficulties." One may wonder if Mr. Darwin ever heard of this corroboration of his theories. The remainder of the paper is taken up with episodes of cannibalism, of the devil, the Incas, giants, and sacrifices; of a cock crowing when Atahualpa was in prison, and of even the birds knowing his name. It appears to me little short of sacrilege to have such a narrative ending with "May God be praised for ever and ever," and I cannot help feeling, with the *Athenæum*, that "the funds of the Hakluyt Society would be

* Op. cit., pp. 70, 71.

† The four provinces in one—the empire.

‡ Op. cit., p. 102.

much better employed in publishing something tending to the solution of the question whether the Americans of Peru and the central provinces came from India or from Egypt, or from both countries."

By information of this latter kind we may be able to get clearer glimpses of the anthropology of prehistoric Peru. The only positive facts that up to the present time we know about the ancient Peruvians, consist in what are being revealed to us every day by the result of excavations in their burial grounds, and by examination of the mathematical forms of their ancient buildings. These show in Peru, to a very great extent, the same as Mr. Stephens observed of the ruins of Palenque, in Central America, namely, "the remains of a cultivated, polished, and peculiar people, who had passed through all the stages incident to the rise and fall of nations, reached their golden age, and perished entirely unknown."

One of the most puzzling things connected with a study of the anthropology of the prehistoric Peruvians is the fact that on islands in the Pacific, such as Easter Island, 2,000 miles from Peru, on the Philippine Islands, on the Ladrões, the Marshall and Gilbert group, the Society Islands, the Navigators', and Marquesas, even in the Sandwich Islands, not long ago visited by Mr. Clemens—the well-known Mark Twain—are observed rock carvings, images, and the ruins of stone buildings somewhat similar in structure, and equally large in dimensions, to those found on the continent in Peru. In fact, the islands mentioned extend over 10,000 miles of ocean. What still adds to this difficulty is the assumption that the early people who made these things had no mechanical tools to aid them in the operations. Because the Mexicans had no iron at the time of the Spanish conquest they are put down as savages. Yet they had abundance of that volcanic glass called obsidian, the chips from which are as sharp as razors. The Peruvians, too, had copper implements, of which I have already exhibited some specimens, taken from graves at Talambo and Pomalca. These are now amongst Colonel Lane Fox's collection in the museum at Bethnal Green. If these colossal works of the old palaces at Tiahuanaco, near Lake Titicaca, and of the stone buildings scattered throughout the Andes, were erected without the machinistic help of such physical aids as to-day render comparatively easy the movements of large bodies, the greater credit is due to the workers of this wonderful architecture. The enormous masses of stone that were settled together without any intervening adhesive of mortar could scarcely have been moved to the apparently inaccessible heights, where they are sometimes discovered, without some important power of locomotion. Because we have

not yet ascertained what it was, is no reason that it should not have existed.

Without going into the philology of either the Aymara or Quichua tongues—the former of which is advocated by Mr. Forbes, and the latter by Mr. Markham, as being the most general idiom of Peruvian antiquity—I here venture upon a supposition. I do so only because I believe all students in the science of languages, that are known to have never been written, can effect little more arrangement than guess, or form grammatical rules out of their own heads. My supposition is that the present city of Calláo, the chief port of Peru, where I resided as Her Majesty's Consul for two years, derives its name from the Collao district of Lake Titicaca, mentioned by Mr. Markham, or that the latter is derived from the former. What can the difference of two vowels—*a* and *o*—be when we see that the last Inca, Atahualpa, is styled Atabaliba by the conqueror's secretary, Xeres, and Atabaliva by his brother Hernando, and we are asked to believe that Parcama means Pacha-Camác!*

Much of the gasconading of Spanish narrative may be thus accounted for:†—"The wonder of the Spanish conquerors at their gems and gold, the ready credulity of the missionary priests in *their anxiety to magnify the gorgeous paganism* which they had overthrown, and the patriotic exaggeration of later chroniclers of native descent,‡ have all tended to overdraw the picture of the "beneficent, civilised despotism of the Incas of Peru." No doubt of it. And this historical muddle was made more obscure by all writers following in the tracks of Garcillaso de la Vega. So that even the eloquent author of the "Conquests of Mexico and Peru," Prescott, studied only amongst said medley in the library at Madrid; for he never was in either Mexico or Peru. And whilst giving to the world the glowing pages of a truly gifted writer, he helped not only to engraft those romantic fictions on the minds of his readers, but tended to sacrifice all the honour and glory due to the prehistoric inhabitants of Peru to the elevation of the Incas, who must have been a degenerate race even in their "gorgeous paganism."

Of such architecture as we have in the colossal burial mounds, no doubt Professor Wilson writes, referring to the massive

* "Reports of the Discovery of Peru," translated and edited, with notes and Introduction. London: printed for the Hakluyt Society, 1872.

† Wilson's "Prehistoric Man," vol. i. p. 295.

‡ This, no doubt, refers to the descriptions of that historian of wonderful memory, the Inca Garcillaso de la Vega, who came to Spain from Peru in A.D. 1550, and whose Royal Commentaries were licensed by the Spanish Inquisition in 1604, or nearly fifty years afterwards, and first published at Lisbon in 1609. The question seems to me an important one, how much of these Quixotic relations about the Incas were idealised and fabricated within the walls of the National Library of Madrid? To which I can only reply, *quien sabe?*

solidity of Peruvian masonry, when he says:* "It is the unconscious aim at the expression of abstract power which attests its triumphs in such barbaric evidence of difficulties overcome; and although it fails even to strive after the beautiful, it not unfrequently impresses us with a sense of sublimity in the very embodiment of that power by which it was achieved. In this respect the most ancient architectural remains of the southern continent have a higher value than those of Mexico, Central America, or Yucatan, for they reveal to us the only true, primitive, self-originating architecture of the New World, and therefore suggest a possible centre from whence that intellectual impulse went forth, pervading with its elevating and refining influences the nations who were first discovered by the European adventurers of the sixteenth century on the mainland of America. Although at that date the distinct centres of Mexican and Peruvian arts were in operation, wholly independent of each other, and had moved in opposite directions, unconscious of the rivalry thus carried on in the development of a native civilisation for the nations of the western hemisphere." I may add my belief that Mexican, as well as Peruvian, art and manhood were very far down the ladder of decline at the time of the Spanish invasions just indicated.

In spite of Professor Wilson having come to the conclusion that the natural form of the elongated (dolichocephalic) skull "never owes any of its peculiarities to artificial compression," we might infer that, as the distorting process is known to be carried on even to the present day, such a practice may lead to congenital malformation. Señor Raimondi, one of the most eminent scientists in Peru, and a man of very extensive travel, as well as observation, saw a child in the process by which this is effected only a very few years ago, during his explorations amongst the tribes in the province of Loreto. This was being put through operation by a mother of the Conibos people; and Señor Raimondi saw the child in the bandaging, as it was brought to the mission at Surayaco to be baptised.†

I have already observed that Peruvian anthropology of the prehistoric period is, up to the present time, little more than conjectural. Whence did the early Peruvians come? That they immigrated from China, by way of Behring's Straits, is advocated by De Guignes, Paraney, and Señor Newman de Monaco. This theory is likewise upheld by Señor Mariano

* Op. cit. vol. ii. p. 94.

† In my work, "Two Years in Peru," is an illustration of such a flattened head, found in the Campas territory, at a height of 12,000 feet above the level of the sea.

Edward Rivero; admitted as possible by Señor Mariano Felipe Paz Soldan; and even suggested as probable by the illustrious Baron Von Humboldt. But if it be granted, we have before us the fact that the native Peruvian and the native Chinaman of to-day have not one single point of resemblance, either in physical or mental qualities. Not even the slightest *nimbus* of such an origin seems to me recognisable in any of the twenty-six different species of hybridity mentioned by Dr. Tschudi as to be found in Peru. And these are becoming so stretched out to the *ne plus ultra* of what is miscalled half-caste, that amongst the plebeian population—indiscriminately termed *Cholos*—there is no visible mark or sign by which it can be determined to what segment of the human family, anthropologically speaking, they belong. Of this accredited Chinese origin Professor Wilson writes doubtfully, but supposes that* “many slight indications combine to suggest the hypothesis of a peopling of South America from Asia through the islands of the Pacific.” In the same page the Professor starts another idea, that from one of the early centres of South American population planted on the Pacific coast by Polynesian or other migration, and nursed in the neighbouring valley of the Andes in remote prehistoric times, the predominant southern race diffused itself or extended its influence through many ramifications. Then he goes on to say it spread (meaning, of course, the predominant southern race) to the north, beyond the Isthmus of Panama, throughout Central America, and after occupying for a time the Mexican plateau, it overflowed along either side of the great mountain chain, reaching towards the northern latitudes of the Pacific, and extending inland to the east of the Rocky Mountains, through the great valley watered by the Mississippi and its tributaries.

Unless I am to believe in the axiom of Talleyrand, that “words were given to us to disguise our thoughts,” I cannot help understanding that the foregoing tells me of a predominant race making this migration and these ramifications. But in the very succeeding sentence we are told—“It must not, however, be supposed that such a hypothesis of migration implies the literal diffusion of a single people from one geographical centre.” This is but a splitting of words; because, if it be the same race, they must come from one common anthropological, if not geographical, centre. “I should no more think of designating either the Toltecs, or the mound builders, Peruvians,” he continues, “than of calling the Iranian-Indo German-Greeks.” In this the Professor is evidently coming prematurely to a foregone conclusion; for that the ancient Peruvians were mound

* Op. cit., vol. ii. p. 437.

builders we have evidence in the fact of the whole Peruvian coast, to a stretch of nearly fifteen hundred miles along the Pacific, being thickly covered with such mounds as I have diagrams of in my possession (Plate xxix. fig. 1). The most wonderful part of this latter-mentioned incident is the fact of the resemblance which the mounds excavated in the valley of the Mississippi bear to those we find in Peru.* Amongst the former we are told of "a mound one thousand feet in circumference and seventy feet high. Another is two thousand feet round the base and ninety feet high—a truncated pyramid with a flat top of several acres." Why, these are but small mud-heaps compared to the mounds I have had measured at Pacha-Camác and between Lima and Callao. The top of the mound at Pacha-Camác, all of artificial formation, at a height of 200 feet from the base, has a plateau summit, comprising a space of ten acres square; whilst the mounds of Pando and Ocharan far surpass any of those described by Mr. Squier as found in the valley of the Mississippi. That of Pando (Pl. xxix. fig. 1) is 108 feet high, measures 276 to 278 yards from one end of top to the other, in eight gradations of declivity, and 95 to 96 yards across, whilst it is calculated to contain a mass of 14,641,820 cubic feet of material. The wonder at these measurements will be increased when I add that a great portion of it is made up of such sun-dried bricks as I have previously shown to the members here, and that each of these measures only 6 inches long, 4 inches wide, and $2\frac{1}{2}$ inches thick.† More marvellous is it still, that many of these have marks of human fingers on them. The question of tools of art in erecting such a building as this is a secondary consideration. The grand idea is the amount of labour required to pile up such a building. Truly Mr. Mott observes:‡ "The notion that the mere patience of savages, whose time is of no value, may account for the production of works of this kind cannot be entertained. Time is necessarily of value where large numbers of men work together, and only large numbers could accomplish what is found to have been done."

Of the Mississippi mounds we are further told by Squier, in his "Smithsonian Contributions": "Many of the inclosures are in the form of circles and squares, and in many cases these figures are mathematically exact, notwithstanding their great size. In one of these exact squares, each side is a thousand and eighty feet long, and the area inclosed twenty-seven acres. In one of

* "Smithsonian Contributions."

† Specimens of these can be seen at the Bethnal Green Museum.

‡ "On the Origin of Savage Life." Opening Address for session beginning October 6th, 1873, by Albert J. Mott, President of Liverpool Literary and Philosophical Society.

the exact circles the diameter is seventeen hundred feet, the area forty acres. The precision of these figures has been ascertained by mathematical survey. The ellipse, also exact, is found in other cases.

"One work has the remains of more than two miles of stone wall, containing nearly a million cubic feet of stone. In another there are three million cubic feet of earthwork."

Totidem verbis! At the mound of Juliana, or Ocharan, near Chorillos, tracked for me, as were the others, by Mr. Steer, of Michigan University, we find an enormous mass. It was ascertained to have an elevation of 95 feet, an average width of 155 feet, and a total length of 1,284 feet, or 428 yards. Like that at Pando, it had graduations of declivity from one end to the other. But the most wonderful thing was its being enclosed by a double wall, now in ruins, which measured 2,448 feet, or 816 yards on two sides, and beyond 2,100 feet, or more than 700 yards, at the other transverses. These enclose a square of 571,200 yards, or about 117 acres.

Of the exactitude in measurements done by the Mississippi mound builders, we are told—"That they understood the general principles of geometry and engineering is proved by the exactness of their work." It can be seen by any one who reads my book, "Two Years in Peru," already mentioned, that the measurements of the Peruvian mounds which I have examined all converge to multiples of twelve. This may be an indication of their early acquaintance with the zodiac; and from them the Incas might have derived their astronomical knowledge. A very palpable difference exists between the mounds in the Ohio and Mississippi valleys and those in Peru. Professor Wilson* says:—"So far as has hitherto been observed, the sepulchral mound is generally the memorial of a single interment, though the frequent occurrence of groups of four, five, or six mounds, where a central one of from twenty to thirty feet high is surrounded by others varying from four to ten feet in height, suggests a probable relation between the whole group." In Peru the burial mounds are on a gigantic scale; these structures contain some thousands of bodies, and each body having its separate resting-place in the general community.

There are few features of the ancient civilisation in Peru so perceptible, even to the casual observer, as the marvellous attention to details with which they buried their dead. The bodies were generally placed in the same position as they are known to exist during the progress of uterine life (Plate xxviii.). They were carefully wrapped and swathed with cotton flock and cloth; the men having bags of coca leaf for their journey to the next

* Vol. i. p. 361.

world, either on the head or slung round the body. Men, women, and children had frequently a bit of copper between the teeth, like the obolus which the pagan Romans used to place in the mouth to pay ferry to the boatman Charon for passage across the Styx. Besides these the men had slings and pottery-ware, as well as agricultural implements, buried with them; whilst the women always were furnished with needles, thread, cloth, combs, and other accessories of housewifery. I found in burial grounds on the northern coast of Peru, near Lambayeque, articles of dyed woollen thread-work, ceramic ware, cloth, needles, and so forth, exactly similar to what had been taken from graves of the same model away down south, at a distance of a thousand miles, by Mr. J. H. Blake, of Boston. The variety of structure in the graves is likewise very remarkable. In one place, Paràrà, up the Oroya Railway, in the valley of the Rimac, are the ruins of a necropolis, where are hundreds of graves (Pl. xxix. fig. 2). Some of them are 5 to 6 feet deep, others 2 to 3; whilst more are above the earth. But whether under or over the ground, they are all shaped inside with stone and plaster, and there is at the bottom a communication of a hole about 6 inches in diameter between each of the graves. Whether this was in the hope of allowing communion of the spirits after death we of course know not. The graves in these large mounds are fashioned inside with adobe, or sun-dried brick, and sometimes plastered.

In many burial grounds, such as the extensive tracts we find at Ancon, Pasamayo, Pacha-Camác, and those Mr. Blake has observed at Chacota Bay, southward of Arica, we find some graves with circular openings, walled with stones, and lined with a matting of reeds. Several of the bodies in these are placed in the squatting posture, and a few perfectly upright. In my explorations I have found no warlike implements except clubs and slings. But bows and arrows have been taken out of the graves to the south of Arica—the arrow-shafts consisting of two pieces of reed tied together, and tipped with sharp-pointed and barbed flint-heads. From several of the graves at Chosica I took out slings, pieces of bone made in the shape of beads, with a paper of red colouring stuff (probably cinnabar), needles, copper shawl-pins, bits of cloth, balls of thread, and sandals of untanned leather. I regret to find, that in Sir J. Lubbock's work on "Prehistoric Times," published in 1865, and, therefore, three years subsequent to Professor Wilson's book on "Prehistoric Man," in 1862, there is no mention of anything about Peru, except an extract from the latter as to the absence of the potter's wheel amongst the ancient Peruvian manufac-

turers in the ceramic ware.* Yet I am firmly convinced that the mounds of Peru, from which this potteryware has been taken, are not only prehistoric, but possibly belonging to an age far and away before those of the Ohio and Mississippi valleys described by Messrs. Squier and Davis.† One service—of a negative kind though it be—Sir John has given to the practical investigations that have yet to be made on the subject, inasmuch as he has not made any allusion to the Pelion-upon-Ossa fables that have been chronicled by all the Spanish writers on the apocryphal stories about the Incas.

In part of the Andine territory explored by Señor Raimondi, he describes to us large masses of limestone and granite, in which graves were cut by the early inhabitants of several districts. His observations, up to the present published, refer chiefly to the departments of Loreto and Ancachs. In the former, Señor Raimondi found the native population to be very low in intelligence, divided into distinct tribes, each of which speaks a different language. From what is said of their barbarity till they were subdued—the old story—by the Spaniards in 1676 it is difficult to imagine them having any relation to the grand people whose monuments, *ære perennius*, lie around. The tribe of Teneros district, conquered in 1517, speak Quichua, the language of the Incas, and they are wonderful carriers. Of the many other tribes in Loreto—why not respect its old Indian name, whatever it was, ye conquerors and despoilers of Peru?—the Yaguas, Cocamillas, Orejones, Cochiquinas, and a host besides, we can find nothing in their habits of to-day bearing on the ancient civilisation; for they are not workers, as the early Peruvians were. Some of these tribes, in that part of Loreto bordering on the Amazon valley, go naked. Nearly all live on what they kill with their arrows on the earth and in the air, with the addition of such fish as the rivers afford them. But it is uncalled-for to speak of them as the author does, in the light of savage infidels, as contrasted with some of their brethren, who, because they have gone over to the missions, are styled “civilised.” Please remember the motherly love that must have been in the breast of that woman whom I mentioned in my former paper, as going to have her child baptised at the Sarayaco mission, whilst its head was in process of being moulded to the shape depicted in my book.

Señor Raimondi's first pamphlet‡ makes no mention about the ancient inhabitants or the antiquities of the province,

* “Prehistoric Times,” p. 205.

† “Smithsonian Proceedings.”

‡ “Apuntes sobre la Provincia Litoral de Loreto,” por Antonio Raimondi, Profesor de Historia Natural de la Facultad de Medicina. Lima, 1862.

although there is scarcely a square acre of Peruvian territory that does not contain relics of its antique times. His last work, recently published in Lima,* and which sets forth wonderful accounts of the mineral riches of Ancachs, tells us of the marvellous ruins that abound everywhere. Amongst these are the fortifications of huge mounds, built up with human hands, such as he found across the river Llullan, at Caraz and Pumacayan. These great masses, constructed of large stones fitted together artistically, and without any mortar, Mr. Raimondi describes as no doubt belonging to a time "far anterior to the Incas." He tells us of huge rocks placed in horizontal positions—buttresses, bastions, and large flat stones for roofs—over some of the entrance-gates. Near the burial ground of Yungay, towards the river, is another of these, called Huansacay. Amongst the stones there many are rounded, and some are chiselled flat. A like structure is at Tumshacayco, and all these seem to have their integrity being daily broken up, so as to afford building material for the degenerate descendants of the ancient Peruvians. Interior to the port of Casma, many of such ruins exist at the feet of the Cordilleras. One of the most noticeable of these is a large castle, quite close to a place called by the Spaniards Malpaso (bad pass), and to this old relic they have given the title of Castillo de Calaveras (or Castle of the Skulls). It has four large walls of elliptic form, enclosing in the centre, and on the most elevated portion of the fortification mound, two houses of circular shape. All these walls are constructed of enormous blocks, which, though not cut into form, present a smooth surface; for the small interstices are filled up with little stones that are made almost to dovetail into one another. The outside wall has four doors of elliptical diameter. At the entrance this is nearly four yards thick, forming, in fact, a vestibule, covered over with trunks of algaroba wood, which are placed side by side; and these trunks appear as smooth as if they had been planed. Probably they were scraped with obsidian. That this was a castle for defence may be assumed from the fact that the doors all open in front of the wall, inside, and not opposite the outer door; whilst all the entrances within are so arranged that they have to be approached by a narrow alley, through which only one person at a time can pass. Around and about in the valley are several remnants of walls of 8 to 10 yards in height.

Near the Bay of Santa—the district where we are told by that romancist, Garcilasso de la Vega, the Incas met with the sturdiest resistance in their invasion of the coast valleys—

* "El Departamento de Ancachs y sus Riquezas Minerales," por A. Raimondi, publicado por Enrique Meiggs. Lima, 1873.

large quantities of excellent style of pottery have been dug up. The neighbourhood is likewise remarkable for several huge mounds, or huacas, which I saw when I was there a few years ago, but had not leisure or opportunity to explore. Strange to say, Señor Raimondi does not mention them. Further on, at Huarmey, or Guarmey, we have more of these. In this district, between Cuzco and Huanchay, and not far from a small gold mine which is here, are several stones of diorite, engraved like to those that I saw on the Pacasmayo Railroad; others similar are observed at a place called Los Caleras, on the road to Arequipa. The marvellous thing about such rock writings is that they are done on exactly the same style of stone as those at the Yonan Pass, and at Arequipa, although these places are respectively 400 to 500 miles distant from each other. About this neighbourhood ruins of fortifications are likewise observed. Near all these Indian towns—farther on, through Huayan, Conchucas, and Pomabamba—treasures of art in silver, potteryware of the finest kinds for household use, and of the coarser for mineral crucibles, have been excavated, and are still being discovered in abundance. The district of Pomabamba is the richest in antiquities of any that we have passed. Here is another place, called Paràrà,* at an elevation of beyond 12,000 feet above the level of the sea. In this place, almost perpetually covered with snow, and on the road between Pomabamba and Andamayo, exist other ruins of fortifications. There are lofty stone pillars about, and relics of houses everywhere. But the most wonderful thing is what remains of the fortifications of Lipa, situated on the heights of Pasa Cancha, to the N.N.E. of Andamayo. On Pasa Cancha, and close to the ridge of mountain, is a large number of fortified buttresses, intermingled with sepulchral monuments. One of these is thus described by Señor Raimondi†:—

“Some loose stones scattered here and there, without any seeming concurrence, attracted the attention of a few inhabitants of the place, who, having removed the earth, found, at the depth of a little more than a foot, a large stone with the upper face partly scooped out. The stone was more than three metres and a half (near to four yards) long, and three metres wide. It was about half a yard thick. Continuing the excavation to discover what was underneath, they found that this enormous cut stone leaned, on each of its sides, on a small wall, constructed likewise of stone, and served as a roof to another of cubic form, more than a yard and a half in breadth, and completely buried, leaving between the two a space of less than a metre. The cubic

* The Aymara name for grinding-stone.

† Op. cit. p. 182.

stone had a square excavation in the centre, of a metre and 20 centimetres (about a yard and a half) of depth, and 80 centimetres, or little over two feet, of breadth; and on the edge round was a groove, to which fitted another stone that served as a lid. All these were of a compact diorite, and chiselled to the greatest perfection. But the marvellous part of it appears to be that the hill on which this structure was erected was of sandstone, so that for some reason or other—say of their customs or traditions—instead of constructing a monument of the sandstone which was at hand, they brought these masses of diorite from a long distance. This monument was discovered in 1859. In the large square hole of the centre no body was found, but in the corners about were discovered other similar excavations, with the bones of children, and quantities of gold and silver of excellent workmanship."

No doubt this was intended for the mausoleum of some great man of the period, who failed to be the arbiter of his destiny, as regarded his last resting-place.

Subsequent explorations in the same locale and vicinity brought other archaeological treasures to light. Amongst them was found a burying place of rock, excavated and shaped like an egg cut in two parts, the upper serving as a lid to cover when the dead body was put in. Ashes to ashes! dust to dust! germ to germ! What a strange illustration of the touch of nature "that makes the whole world kin!"

One of the treasure-hunters here was much disappointed at the result of opening a stone coffin that he found. He was flattering himself, from hearing something rattle inside when it was being moved, that it must contain bars of silver, if not of gold, when lo! taking off the cover, it was full of horns of a sort of deer, known in the country by the name of *Taruca*.* At Piscobamba, too, Señor Raimondi writes of some antiquities of "*the time of the Incas*," the usual date of antiquity with all Peruvian writers; but he gives us no proof that the Incas ever were here at all. Caves are found full of bones of the ancient inhabitants—caves in places the most inaccessible, as it seems to have been the special care of the survivors to place their dead friends and relatives in the most out-of-the-way and uncomfortable positions.

At other ruins of castles, fortresses, and sepulchres in Jocos and Quito, near this place, is precisely the same style of graves as described by me in a letter to Professor Busk,† relative to Ancon, six hundred miles distant, the circular ones being lined

* The *Cervus antiensis*.

† See "Journal of Anthropological Institute," vol. iii. No. 1, April, 1873, page 88.

inside with stones. These wells are only the apertures to burial vaults, one on each side, and one in front and back, in the shape of a cross, as it were. The skulls from all these were dolichocephalic; but though the occiput was very much developed, in most of them the facial angle was not at all depressed.

The town of Chavin (or, to distinguish it from another Chavin on the right bank of the Marañon, Chavin de Huantay) is rich in prehistoric treasures. Chavin is to the south of Huaraz, to which Mr. Meiggs' new railway from Chimbote will soon lead, and it is in a direct parallel with Casma from the sea. It is about 10,000 feet above the level of the ocean. The first of its remarkable antiquities is a bridge over the river Chavin. This is made of three large stones of granite brought from a great distance, as all the geological formation of the neighbourhood is of sandstone. Their dimensions are as follow:—

	Length.	Breadth.
1st	4·25 metres.	0·54 metres.
2nd	6·50 „	0·40 „
3rd	4·33 „	0·60 „

One is confounded at trying to guess by what mechanical appliances a granite stone, nearly twenty feet long and a foot and a half wide, could be transported over these mountain heights.

Passing across this bridge the traveller comes to a great wall, situated at the side of the road before getting into the town, and formed of stones nicely put together without any mortar. Besides this there are other remains of a building of quadrangular form, having two wings, approaching the river, and this is known as the Castle of Chavin. It is being pulled down, little by little, to build their huts, by the inhabitants of the town. Its walls are constructed of a mixture of granite and sandstone, the latter of which is showing the influence of time upon its wear. Nothing can speak more forcibly than this for its antiquity, as Peru is the most conservative of soils, as well as of climates. It consists chiefly of a quantity of extensive subterranean tunnels, canals, passages, and galleries, some of which cross at right angles. The entrance to these is not more than a yard high, so that the explorer must go in on all fours. Some of the inside galleries are not beyond 2 feet high, and occasionally you find yourself in a small room about 4 or 5 yards wide by 2 broad. The walls of passages are made of intermixed sandstone and granite. Here and there are small openings of a foot to a foot and a half wide, apparently for ventilation purposes.

Nearly in the centre of the ruins stands a large granite column, covered, in *bajo relieve*, with capricious designs. Amongst

these are several eyes, with mouths and great eye-teeth, of which we cannot guess the signification. Another granite stone has been taken out of the castle and is kept at a house in Chavin. It is of rectangular form, of 1 metre 80c. long by 70c. and 15c. thick, with engravings still more complicated than those of the pillar. This stone is completely smooth and polished. The sketching on it represents the caricature of a man, who holds in his hands a kind of staff or sceptre formed of a group of serpents, and on his head an ornament, on which is engraved a large number of snakes, open mouths, and eye-teeth, like the column before mentioned.

Señor Raimondi believes that the artist who did these works had the idea of representing the Genius of Evil. After several cogitations about the probable use of the place—finding it was not a mausoleum for the dead, believing it could not have been a temple for worship—he comes to the conclusion that it served as a fortress and a prison at the same time. This may be but a guess.

Yet, after all, what are our means of arriving at a notion of the anthropology of prehistoric times amongst such people, but guess, idea, dream-work, and speculation? If the Spaniards who, under Pizarro, laid waste the country in the sixteenth century had any taste for knowledge of history, they might have preserved a few truthful traditions of these old people. Instead of which they set to concocting a Munchausen story of the Incas, and handed it down to us with the most preposterous fictions about gold. How the walls of some houses were covered with gold; how they had golden pipes to convey the water, and the stones forming the baths were cemented with mortar made of gold and silver. Even the old pilot, Bartholomew Ruiz, commended by some of the Inca believers as the model of truth, describes one of the *Balsas* he met out at sea in connection with gold. This is a Peruvian craft, formed of huge timbers of light, porous wood, and with a flooring of reeds raised above them. Two masts sustained the large, square, cotton sail, and a moveable keel and rudder enabled the boatmen to steer. Exactly the style of float that I went ashore upon to San José, the port of Lambayeque, about eighteen months ago, from the steamer Quito, and the most unlikely craft to have even a suspicion of gold on board. But Ruiz must have found in this floating bundle of corkwood a rather aristocratic crew and passengers, for we are told: "On board of it Ruiz saw ornaments, displaying great skill, wrought in silver and gold, vases and mirrors (?) of burnished silver, curious fabrics, both cotton and woollen, and a pair of balances made to weigh the precious metal." The idea of balances to weigh gold on board

of a little craft, in such a rough sea as is generally in the northern Pacific, borders somewhat on the farcical. Atahualpa, too, had a lot of gold with him, at the baths of Caxamalpa, when he was ordered to be executed; and ten thousand llamas were on their way down from Cuzco to stop this barbarity, each llama carrying one hundred pounds weight of gold on its back. Ten hundred thousand pounds in weight of gold! It had only reached half-way when news arrived to the llama drivers of its being too late, as Atahualpa had been strangled. So, presto! the Indians and llamas skedaddled, and the gold evaporated, for nothing has ever been known of it to this day!

The prehistoric period of European civilisation appears to be marked by the primæval "stone period" preceding the earliest discovery of metallurgic art. Before the stone period in Peru, and in parts of valleys where rock is difficult of access, we see wonderful monuments of these mounds, which may rather be attributed to a previous "clay period." Many of the towns since buried by earthquakes and volcanoes, and recently turned up by the railway cuttings, show ruins of walls of most primitive mud bricks, of large lumps of clay put into a coalescing mass without shape or form.

After all, we know little more of the anthropology of prehistoric Peru than that its inhabitants were wonderful workers; had no written language hitherto known, except the rock engravings not yet deciphered; for the Quipus were Incaite. But they had discovered the use of metals and of alloy, could manufacture as well as dye cloth, and were skilled in potteryware, although they did not know of the potter's wheel. Of their warfare armaments we are ignorant, except in the matters of clubs, bows, arrows, and slings. Yet we may safely come to the conclusion that they constituted one of the earliest nations, who left no history or chronicle behind them, save what are daily becoming revealed in the works being exhumed from their burial mounds, and in the wonderful architecture with which their country is studded. Equally patent is the fact that they have gradually disappeared from the face of the earth, through some of those mysterious laws which divine Providence dispenses for the rise and fall of races of mankind. And whilst thinking solemnly over their decline and disappearance, we may feel what Mr. Mott* speaks of, namely, "the satisfaction in looking upon this world as a sacred garden, in which the nations of men are, as it were, the trees and flowers, each in its turn growing up according to its kind; each also coming to its natural climax, and then falling to decay, but only to give place and to give birth to others like it,

* "Origin of Savage Life," op. cit. page 44.

though not the same, by which a varied but equal beauty is maintained, and a constant purpose carried out, through ages of ages."

EXPLANATION OF PLATES XXVIII., XXIX., AND XXX.

Plate XXVIII.—Bodies, wrapped in cloth and tied round; taken out of grave vaults at Chosica, Peru.

Plate XXIX.—Fig 1, view of the central *Huaca* of Pando, near Lima. Fig. 2, view of part of the ruins of graves at Paràrà, Peru.

Plate XXX.—Fig. 1, wooden idol found at a depth of 35 feet under guano in the Chincha Islands. Fig. 2, group of stone idol and water-vessels of pottery, found at a depth of 63 feet under guano in the Chincha Islands.

DISCUSSION.

M. DE LA ROSA, Col. LANE FOX, and the PRESIDENT having offered some remarks, the author, in reply, said that his definition of the term "prehistoric" meant the period, or any part thereof, previous to what we have written chronicles about; and as we have nothing written in reference to Peru anterior to the Spanish invasion, everything of the times before that event, comes, in his meaning, under the category of prehistoric. With regard to treasures and bodies being found under the guano (see Plate xxx.), he thought the guano islands in ancient times to have been used by the inhabitants of the mainland solely as places of refuge on occasions of invasion or of local wars. The calculations of Dr. Tschudi, referred to by M. de la Rosa, he believed to be erroneous in reference to the deposits of birds. In his last work ("Two Years in Peru," vol. i. p. 105) he had referred to a similar mistake made by Mr. Bollaert; for the larger portion of the guano of commerce was the deposit of seals, not of birds. Replying to Col. Lane Fox, concerning the images, terraces, and structures mentioned as being in the Pacific Islands, and resembling those in Peru, he derived his authority from Mark Twain's "Roughing It," as also from Mr. Mott's pamphlet on the "Origin of Savage Life," already quoted. It was, of course, for every one to entertain his own opinion on the subject of the Inca dynasty; but for his own doubts, he explained them by asking the question—How can we believe Garcilasso de la Vega, when we know the following incidents of his life? On his father's death he quitted Peru, in A.D. 1550. The first part of his "Commentaries" was licensed by the Inquisition in A.D. 1604, or more than half a century afterwards, and was published at Lisbon in A.D. 1609. Are we to believe the "Royal Commentaries" were all treasured up in the memory of the wonderful historian for fifty-four years? for at the time spoken of no communication of reporter's notes, monthly postage, or telegraphic messages was in vogue. Or does not the probability of



BODIES FROM GRAVES AT CHOSICA.

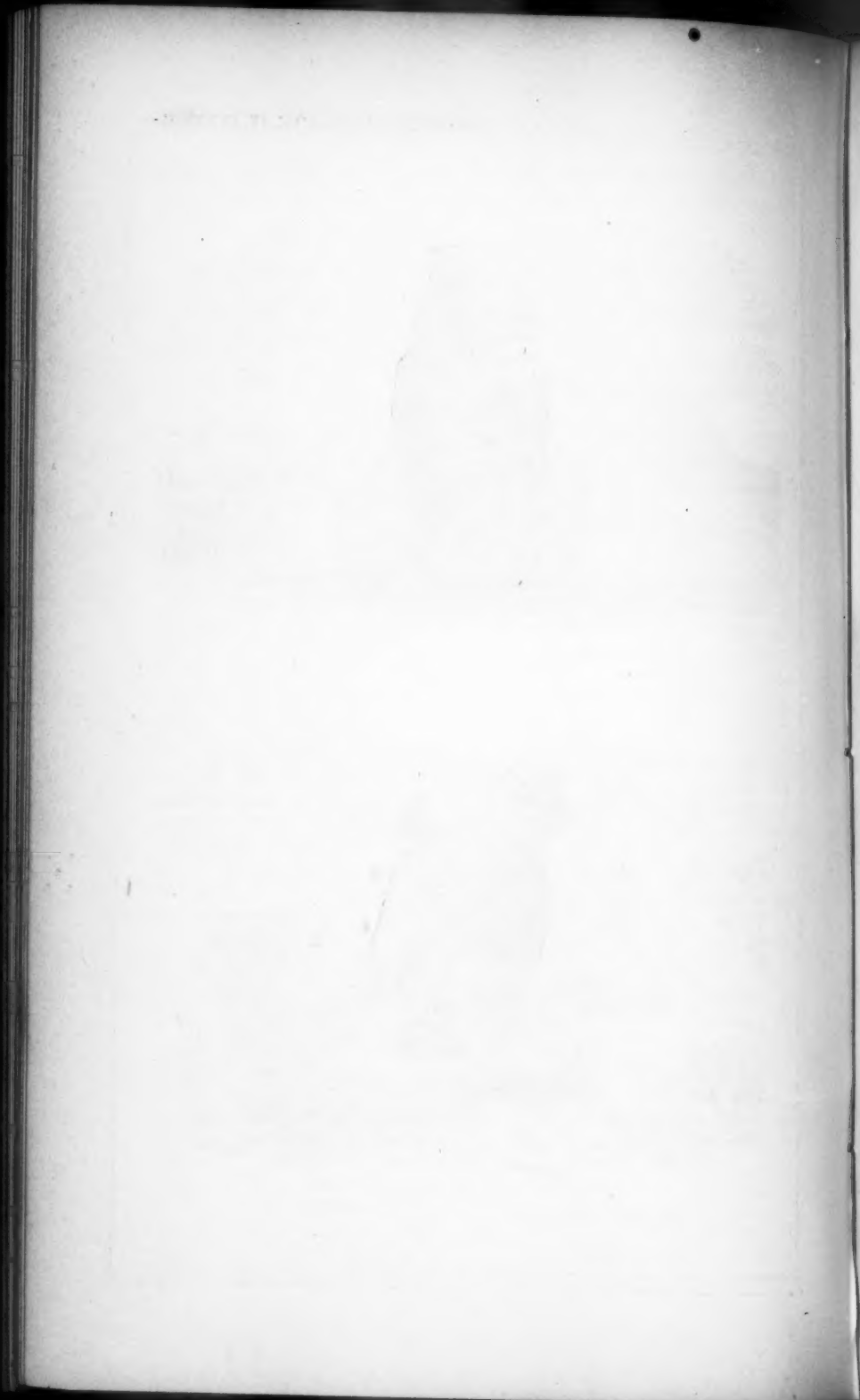
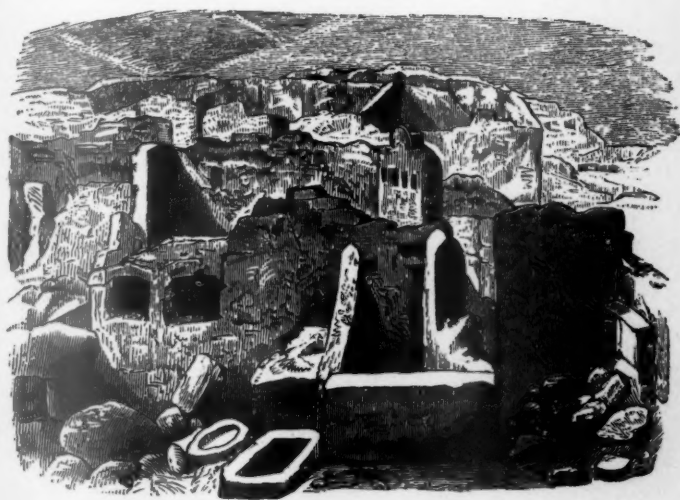


Fig. 1.



Fig. 2.



ANCIENT PERUVIAN BURIAL MOUND AND GRAVES.

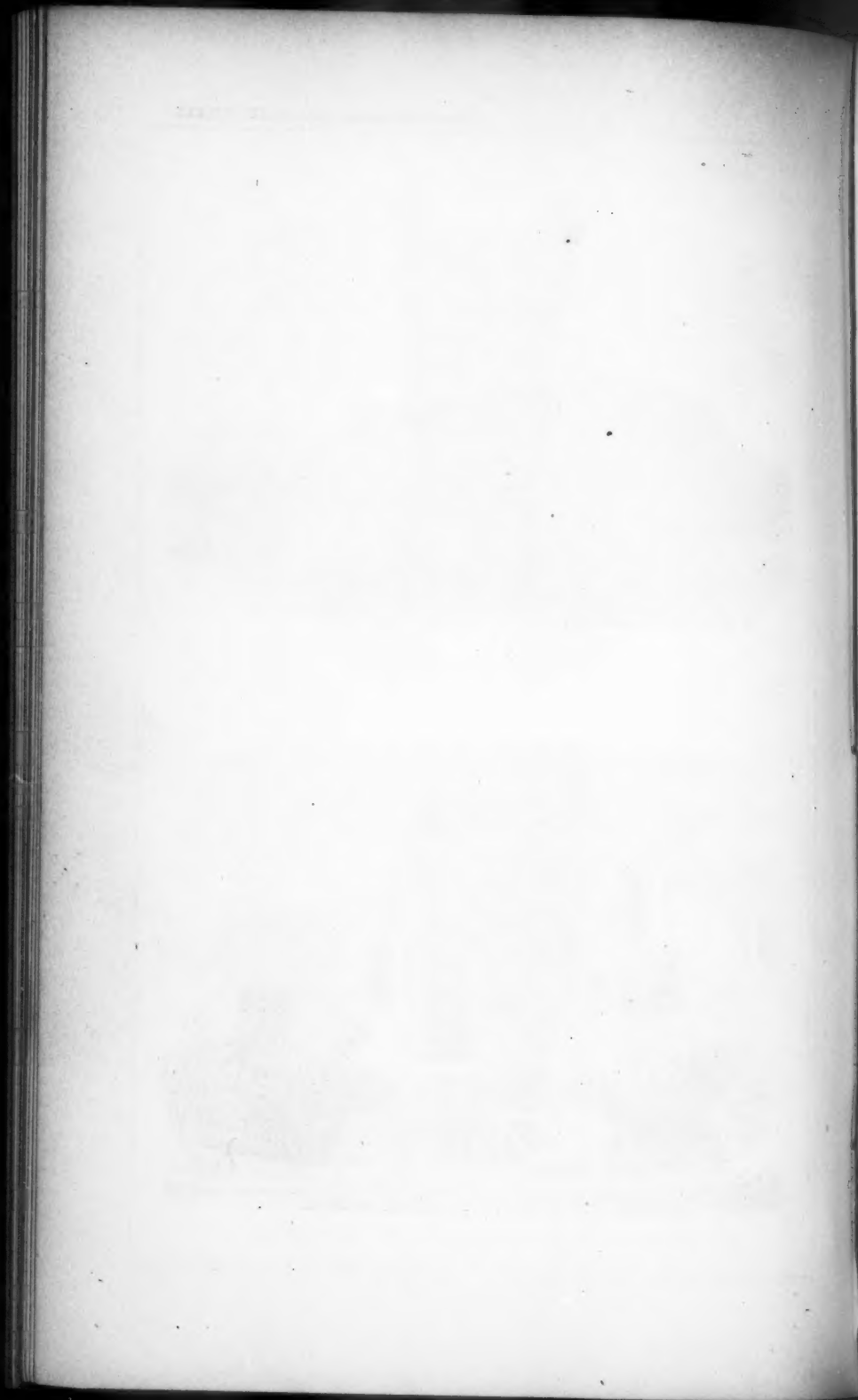


Fig. 1.



Fig. 2.

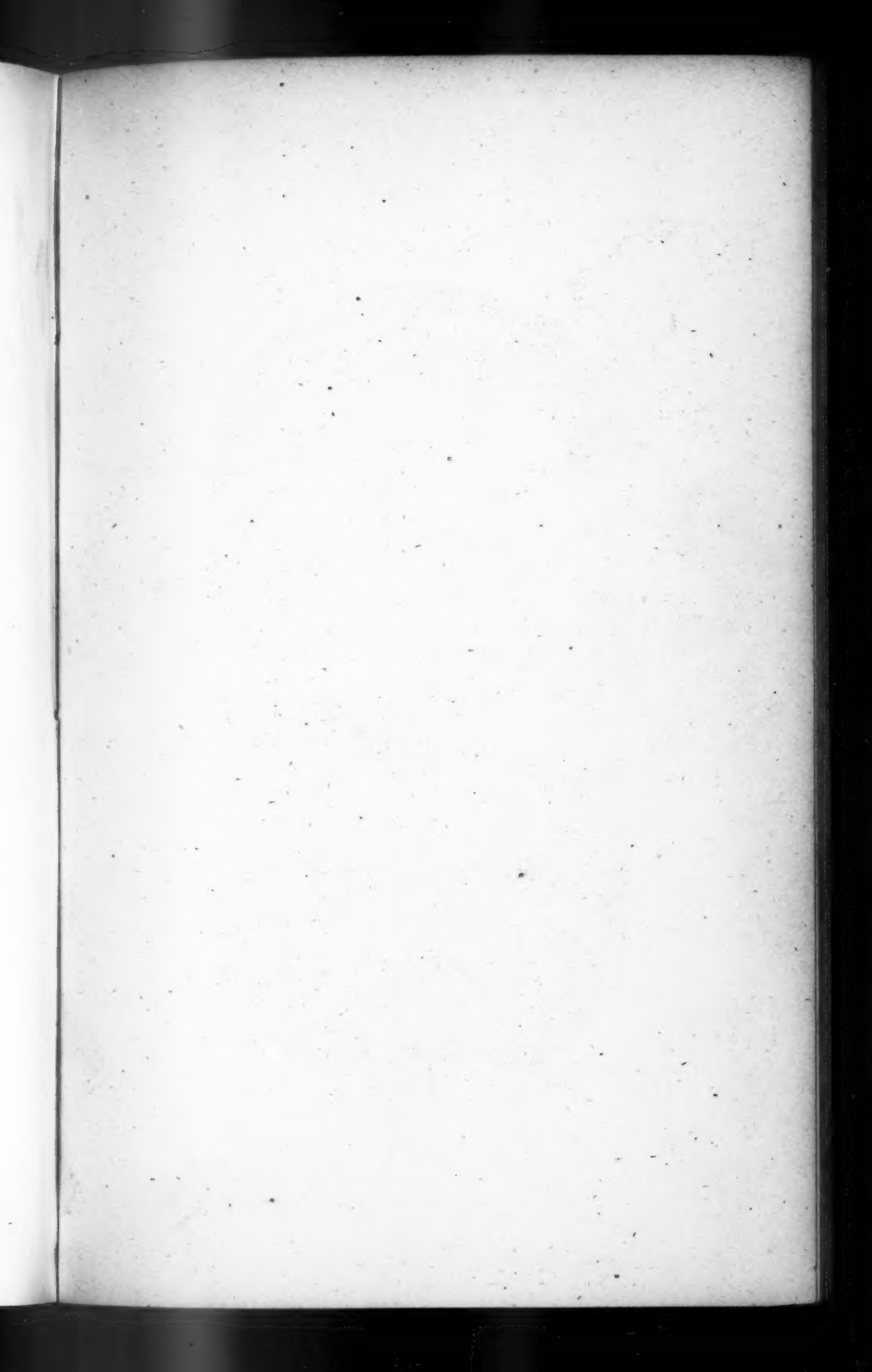


IDOLS, &c., FROM GUANO OF THE CHINCHA ISLANDS.

Journ. Anthropolog. Inst. Vol. II, PLXXXIII.



ANDAMAN ISLANDERS. 1872.







ANDAMAN ISLANDERS

his romance about the Incas appear to be concocted in the National Library at Madrid, when we find, in the "Reports on the Discoveries of Peru," issued by the Hakluyt Society in 1872, and containing four memoirs, the title of Incas is never mentioned except by the translator? The principal of these is by Francisco de Xeres, secretary to the conqueror, Francisco Pizarro, *written by order*; and although it extends over a period of ten years, from A.D. 1524 to A.D. 1534, no mention from beginning to end is made of an Inca or Ynca. The titles of Lord, Cacique, Captain, or Chief, are given to the Indians, but nowhere do we find the word Ynca, unless in the notes of the translator. According to Xeres, Pizarro entered Caxamarca on Friday, the 15th of November, 1532, at the hour of vespers, where he found Atahaliba, or Atahualpa, waiting to receive him with 25,000 to 30,000 men. Pizarro had with him only 160 soldiers; yet the conqueror attacked and slaughtered, in two days after, more than 20,000 of these Indians, doing the little business, as Xeres tells us, in half an hour. If we do a small sum of division about this wonderful feat, we shall find that for 160 men to knock over 20,000 in half an hour it was necessary for each Spanish soldier to do his four men and a fraction per minute! More wonderful still is the story that some of these 160 went in pursuit of several fugitives, and brought back 2,000 as prisoners. The so-styled Ynca, Atahualpa, of whose dreadful fate every one who has read the beautiful pages of Prescott must be aware, is described by Xeres as Atabaliba, the Lord of Caxamalca, "where he had settled, and whence he continued to conquer other lands." By Xeres, as well as by Hernando Pizarro, in a letter of the latter to the Royal Audience of Santo Domingo (A.D. 1533), he is also called young Cuzco, in contradistinction to his father, old Cuzco, who, we are told by the translator, but not by the author, was the Inca Huayna Ccapac. It therefore appears to me probable that some future explorer may discover the cradle of the Incas to have been in the National Library at Madrid, and not in the Valley or Lake of Titicaca.

The Director read the following paper for the author :—

On the ANDAMANS and ANDAMANES. By G. E. DOBSON, B.A., M.B., F.L.S., &c. [With Plates xxxi., xxxii., and xxxiii.]

THE Andamans may be shortly described as a chain of narrow islands, nowhere exceeding twenty miles in breadth, forming the middle portion of a series of smaller islands and shoals lying between Cape Negrais, in Burma, on the north, and Acheen Point, in Sumatra, on the south. From evidence to be adduced hereafter, it will be seen that these islands and shoals were certainly for some time, perhaps for a short period only, connected with the main land to the north and east, most pro-

bably at a very recent geological epoch, when, as pointed out by Mr. Wallace,* the continent of Asia extended far southward beyond its present limits, including the islands of Sumatra, Java, and Borneo. At that epoch this series of islands and shoals now lying between Sumatra and Burma probably formed part of the eastern boundary of the Bay of Bengal, while that portion of the present Asiatic continent known as the Malay Peninsula formed a long ridge of elevated land far to the eastward of a great alluvial plain, through which a mighty river flowed, the (?) Irrawady of the past.

Investigation of the zoology of the islands shows—1st. That the islands were *last* connected with the Asiatic continent, most probably with that part known as Burma and the Malay Peninsula. 2ndly. That they probably formed portions of a large island placed in the delta of a great river. 3rdly. That they have not been at any time completely submerged since their separation from the continent.

The zoological facts on which these inferences are based are: 1. The absolute identity of almost every species of animal inhabiting the islands with species common also to India and Burma especially. 2. The presence of fresh-water fishes in the islands, of which almost every species (one species—query variety—only excepted) is found in the fresh waters of Burma.† 3. The great paucity of mammals, especially of all large mammals. Hitherto the only large mammal found in the islands is a pig (*Sus Andamanensis*), which has been shown to be a hybrid between two species from neighbouring countries, and has probably been introduced by design, or by having escaped from shipwrecks.‡ The other small mammals, about six species (not including bats§), consisting of rats and mice and a species of *Paradoxurus*, may have been introduced in the same manner. Most of these, if not all, are found in Burma. Although the islands are densely covered with lofty trees yielding an abundance of fruit, not a single monkey|| or squirrel has been discovered. This absence of mammals can only be accounted

* "The Malay Archipelago," Part I.

† Mr. Francis Day is my authority for this statement.

‡ Compare Lyell, "Principles of Geology," pp. 358, 359.

§ Of the very few species of bats as yet known to inhabit the Andamans, three are peculiar to these islands, or, at least, not yet recorded from other localities. One, *Pteropus Nicobaricus*, is common to the Andamans and Nicobars; and probably the bats of both these series of islands will, hereafter, be found to be nearly identical. The additional power of aerial locomotion possessed by bats renders them in a very much less degree subject to the operation of certain causes which effectually limit the distribution of other mammals.

|| "It is stated at the Andamans that many skulls of convicts have been sent away as those of the aborigines, whilst a *tame monkey*, received from India and given to the crew of a passing man-of-war, has lately received a new specific

for by supposing that when forming part of the Asiatic continent, the land now known as the Andamans lay between the mouths of a great river falling into the Bay of Bengal.

Mr. Bates and Mr. Wallace have shown how great rivers like the Amazon affect the distribution of species. Such great rivers present barriers as effectual as an arm of the sea, to which they may be likened. Hence the absence of monkeys, squirrels, and other small mammals, abundant in the adjacent countries, but not found in the Andamans, may be explained. In the same manner the presence of fresh-water fishes common to the Andamans and Burma may be understood.*

It is also evident that the islands have not been submerged since they ceased to form part of the continent of Asia, for this would have been attended with immediate destruction of the fresh-water fishes.

I have prefaced my remarks on the Andamanese with these notes on the zoology of the islands, and the evidence afforded therefrom of the changes that have probably taken place in their geographical relations during recent geological periods, in consequence of their importance in discussing some of the theories which have been advanced to account for the colonisation of the Andamans by their present peculiar inhabitants. These theories may be shortly summed up as follows:—

The present inhabitants of the Andamans are—

I. The descendants of shipwrecked negroes, escaped either from some Arab slave-ship carried out of its course by adverse winds, or from a slave-ship wrecked on the Andamans on its way to the Portuguese settlement in Pegu (Syme's "Embassy to Ava," Calcutta *Monthly Register*, 1790).

II. Aborigines, not connected on any anatomical grounds with the people of any existing continent (Owen†).

III. Negrito-negroes (Huxley‡).

IV. Negritos, or Samangs, from the Malay Peninsula (Wallace§).

V. Mincopie branch of the Negrito division of an original negro stock.||

name in London as being indigenous on these islands."—"Observations on the Andamanese." By Surgeon Francis Day, "Proc. As. Soc. Beng., June, 1870," p. 153.

* Dr. Günther remarks:—"The fresh-water forms being limited to the river—or lake—systems which they inhabit, and being less exposed to the disturbances affecting the terrestrial animals, are singularly adapted for the elucidation of the original geographical distribution of the animals of the present creation."—Catalogue of Fishes in the British Museum, vol. viii., Pref. p. 9.

† "On the Psychological and Physical Characters of the Mincopies," &c.; "Report of Brit. Assoc., 1861," p. 241.

‡ *Fortnightly Review*, 1865, p. 268.

§ "Malay Archipelago," vol. ii. p. 452 (1868).

|| Quatrefages, in "Revue d'Anthropologie," 1872.

I have arranged these theories of the origin of the Andamanese according to their date. The presence of a race of negroes (for such every one with a mind unbiassed by preconceived ideas of their origin will consider the Andamanese) in a chain of small islands surrounded by countries inhabited by races very different from them in every respect had, more than one hundred years ago, excited the wonder of travellers. Among the theories put forth to account for the origin of this people, the most generally accepted appears to have been that of Syme ("Embassy to Ava"), who considered them the descendants of negroes escaped from some wrecked Arab slave-ship carried out of its course by adverse winds; or that recorded in the Calcutta *Monthly Register* for 1790 (quoted by Professor Owen*), which supposes that they are descended from "African negroes imported by the Portuguese for slave labour in their settlement at Pegu, and which had been wrecked on the Andamans."

This hypothesis, that they are the descendants of shipwrecked African negroes, is dismissed by Professor Owen as untenable, first, on osteological grounds; and second, because "it is to be presumed that the Portuguese would import from the Guinea coast, or other mart of negro slaves, individuals of the usual stature, and it is incredible that their descendants, enjoying freedom in a tropical locality affording such a sufficiency, and even abundance of food as the Andamans are testified to supply,† should have degenerated in stature, in the course of two or three centuries, to the characteristic dwarfishness of the otherwise well-made, well-nourished, strong, and active natives of the Andaman Islands."‡ The argument that they are not negroes, founded on an examination of the form of their heads, which, as Mr. Busk has pointed out, present the rare combination of brachycephaly with woolly hair,§ is much lessened in value by recent observations.

Mr. E. T. Hamy, in a short paper published in the "*Comptes Rendus*,"|| points out the existence of brachycephalic negroes on the West Coast of Africa, and remarks that these people are to the other African negroes what the Negrito Mincopies, Aïtas, &c., are to the Oceanic negroes.

I believe that a much better proof that they are not descendants of shipwrecked African negroes may be derived from an examination of their habits and customs. These agree in no

* *loc. cit.*

† This assertion needs further proof.

‡ Owen, *l. c.*, p. 246.

§ Referred to by Huxley, *l. c.*

|| 'L'existence de nègres brachycephales sur la côte occidentale d'Afrique.' Feb. 1872, p. 379.

respect with those of any known African tribe. It is inconceivable that adult negroes, transferred to a distant land, would not have carried with them and handed down to their children the habits and customs of their ancestors. The negroes in the West Indies and America to this day preserve the fetish rites so common among the African tribes, and the acquisition of a new religion, and residence among strangers for more than 200 years, have not sufficed to lessen their belief in them.*

The results of Professor Owen's examination of the psychical and physical characters of the Andamanese are contained in the following short remarks:—"I conclude, therefore, that they are aborigines, and merely resemble negroes in blackness, or, rather, sootiness of the integumentary pigment, which might be due to constant exposure during many generations of this rude and primitive race. . . . I am not cognisant of any anatomical grounds for deriving the Andaman people from any existing continent; but in making these remarks I would offer no encouragement to the belief that they originated in the locality to which they are now confined. . . . The Andamanese are, perhaps, the most primitive, or lowest in the scale of civilisation, of the human race. They have no tradition, and, as has been before remarked, apparently no notion of their own origin.†

Mr. Wallace appears to hit upon the true relations of this curious people, in connecting them with the woolly-haired Samangs of the Malay Peninsula and Negritos of the Philippine Islands, and the same view is expressed by M. de Quatrefages in two exhaustive papers "On the Mincopies and Negrito Race generally."‡ M. de Quatrefages' investigations with regard to the Mincopies may be briefly stated as follows:—

1. That their position on an island to which nothing attracted strangers, has resulted in the preservation of a very great, if not

* Though it follows that Symes' theory is not admissible in accounting for the colonisation of the Andamans, yet such instances of colonisation are not wanting; and, great as the distance is from Africa to the Andamans, it is not impossible, though very improbable, that a ship laden with African negroes and a supply of food might go so far out of its course as to come within the influence of the south-west monsoon, and be by it carried up the Bay of Bengal, some of the crew surviving and escaping to land. Dr. J. D. MacDonald has informed me, that during Captain Erskine's cruise in H.M.S. *Havannah*, a party of natives passed from the King's Mill group to the Navigators' Islands, a distance of about 2,000 miles. He also mentions that a party, consisting of men, women, and children, left Fotuna, an island 50 miles north of the Fiji group, in an open boat provided with food, and never were heard of again by their friends on the islands. But Dr. MacDonald found in the New Hebrides, in an island known as "Erronan" to Europeans, a people in all respects agreeing with the inhabitants of Fotuna, near the Fijis, who used the same numerals, and called their island, not "Erronan," but Fotuna, after the parent island.

† Owen, *l. c.*

‡ "Revue d'Anthropologie," 1872.

absolute* purity of blood, so that the Mincopies of the Andamans may be taken as the type of the race to which they belong.

2. That they belong to an original negro stock (*tronc nègre*), of which the Negritos may be considered one of the branches (*branche*), and the Mincopies a branchlet (*rameau*) of the latter.

3. That the Mincopie branchlet is found in the Andamans, Nicobars, and in the Philippines, and is still represented on the continent in the Samangs of Malacca, and most probably primitively occupied all or part of India.

4. That the Mincopie branchlet has furnished the negro element of a portion, at least, of the Dravidian peoples. Further, to judge from characters afforded from the examination of skulls, some Pariahs are almost pure Mincopies.†

It is impossible to account for the presence of the wild tribes of Southern India—among which the dwellers in trees certainly occupy a lower place in the scale of civilisation than even the Andamanese—or of the peculiar Samangs of the interior of the Malay Peninsula, surrounded by races with which they have no connection whatever, except on the hypothesis that they are the few surviving descendants of a woolly-haired people which in ages past occupied lands south of the Himalayas, when the continent of Asia included within its southern limits the Andamans, Nicobars, Sumatra, Java, Borneo, and the Philippine Islands, and that the present inhabitants of the Andamans and the Negritos of the Philippines are also the remnants of those ancient Negrito inhabitants of Southern Asia which have almost disappeared before the invading Aryan and Mongolian races.

The Negritos most probably belong to the very same original stock‡ as the African negroes, occupying, at a very distant period, a great continent in the Indian Ocean, the "Lemuria" of Dr. Sclater, which seems to have once extended from Africa or Madagascar to the Malay Archipelago. At that period the southern coast of Asia was probably formed by the Himalayas, and the high lands of the peninsula of India were islands in the Indian Ocean inhabited by people belonging to the same race as that occupying the great continent southward of them, and whose descendants are still to be found in the homes of their forefathers. Though this great equatorial continent has almost wholly disappeared beneath the waters of the Indian Ocean, the animals which once inhabited it are represented by some surviving descendants, which, though long and widely separated,

* This is very doubtful. I agree with Mr. F. Day, that the chief of Rutland Island is probably a native of India. The women and children of crews shipwrecked on the coasts of countries inhabited by savages are often saved when all the male adults are murdered.

† Quatrefages, *l. c.*

‡ Tronc nègre of Quatrefages, *l. c.*

in countries once forming its extreme limits, still preserve most of the characters of their ancestors.*

In April, 1872, I visited the Andamans for the purpose of collecting zoological specimens. I was accompanied by Mr. Wood-Mason, of the Indian Museum, Calcutta, and we made Ross Island, Port Blair, our head-quarters. In order to make the most use of our time, we divided our labours, Mr. Wood-Mason undertaking to collect invertebrates, while the vertebrate portion of the collection was in my charge.

Although I traversed the forest for miles in every direction round Port Blair, almost every day for the succeeding month, I never met a single native. On the 4th May, however, an excursion to one of the "Andamanese Homes" was planned. My friend Dr. T. R. Lewis, who happened to visit Port Blair at the same time, accompanied me, and gave me most valuable assistance in taking the photographs which illustrate this paper. We proceeded about seven miles up Brigade Creek, the tidal estuary of a small stream running almost directly southwards to Port Blair, between two parallel ridges, clothed with probably the densest and loftiest forest in the world. The creek runs through a narrow alluvial flat at the base of these ridges, covered with mangrove trees, the deadness and dreariness of which are only relieved occasionally by the appearance of the lovely little azure kingfisher (*Alcedo Asiatica*), sitting on one of the slimy mangrove roots, or flying along the margin of the water, looking like a flash of many-coloured light against the dark oozy banks of the creek. Sometimes the slaty heron (*Herodias color*), a more fitting denizen of these shades, would be seen sitting motionless among the mangrove roots, watching for the appearance of some unlucky fish, but they were the only feathered inhabitants of these silent swamps. Higher up, as we left the alluvial flat, the stream narrowed very considerably, the mangroves disappeared, and were replaced by lofty forest trees, growing on the solid banks, or lying across them so as to seriously threaten our progress forwards. Many kinds of birds flew about, conspicuous among them the long-tailed paradise crow (*Dissemurus affinis*) and the lovely *Pericrocotus speciosus*, its brilliant scarlet breast looking like a clear flame among the dark leaves, while occasionally in the deep forest the drumming of the large, black, crimson-crested woodpecker might be heard.

The appearance of a large "dug-out" canoe, containing two perfectly naked natives, announced that we were near the "home," and soon, on rounding a curve of the stream, a large number of canoes appeared moored along a kind of landing-place. We were received by the wife of the chief, who had

* See Wallace, *l. c.*

hastily donned a frock provided by the Government to receive visitors in, but very soon afterwards, perceiving that no ladies were in our boat, she got rid of that unnecessary encumbrance, and presented herself in nature's garb, adorned by a single leaf, a garter tied below one knee, and a necklace composed of the finger- and toe-bones of her ancestors (see Plate xxxi.). At a short distance from the landing-place we found two long sheds—"the home"—built by the Government of Port Blair. The larger shed was filled with 110 Andamanese of all ages—men, women, and children. Some were engaged in cooking fish, others in mending their bows, and although the appearance of Europeans among them was a rare event, they scarcely noticed our arrival, very few leaving the shed to see what we were about. Outside the shed, reclining in the ashes of a cooking-place, we found the king, or chief of the tribe, half asleep. He gave us to understand he did not feel quite well, and relapsed into a doze.

Very soon after arrival I commenced to erect my photographic tent; but although this is a very remarkable object when erected, the natives scarcely took the trouble to look at it, and none expressed any surprise. Although none of the tribe exceeded 64 inches in height, so that on first seeing them we thought the shed contained none but boys and girls, I was especially struck by the remarkable contrast between the size of the males and females. The chief and his wife afforded a very average example of this (see Plate xxxi.). The central figure in Plate xxxii. is that of a girl brought up from infancy at the Andamanese Orphan School, in Ross Island. This girl I had seen almost every day, sitting in front of the school-house, and on Sunday at church, neatly dressed in white, and her head covered with a fair quantity of black, woolly hair. Four days previous to our visit to the "home" she had asked and obtained permission to rejoin her people, and she was now destitute of clothes, shaved, and greased with a mixture of olive-coloured mud and fat, and married, wanting but the finger- and toe-bone decorations to complete her toilet. This is the girl who, on seeing Mr. Wood-Mason, on his second visit to the islands in the following year, immediately recognised him, and, pointing to her greatly enlarged person, said with much pride, "*buchcha hai!*" The orphan children brought up at the school on Ross Island are taught Hindustani, which they impart to their people on returning to the woods, so that many of the tribes living in the vicinity of Port Blair now speak a curious mixture of Hindustani and Andamanese.

In the centre of the large group (Plate xxxiii.) a woman may be observed sitting, having a round object on one shoulder. This is the skull of her late husband, which, adorned with red

paint and fringes made from wood fibres, is carried about by the disconsolate widow till she obtains another partner. In the foreground two elderly women are seated—the king and queen-mother respectively.* The former wears a necklace of finger-bones; the latter, one made of the bones of the foot and pieces of ribs combined. The peculiar tattoo of the Andamans, described by Mr. Francis Day,† is here well seen.‡ Many of these markings seemed to me to have been produced by simply drawing the finger across the surface when freshly painted with a thick coating of the usual mixture of swine's fat and olive mud or red earth. The individual on the left of the same picture, holding an arrow in his hand, known as "Jumbo" to Europeans, rendered himself notorious some years ago by shooting a sailor through the heart who attempted to take liberties with one of the young Andamanese females. That he was also notorious among his people was evident when, on showing the finished negative to some of the young women, they immediately recognised the likeness, and pointed him out among the figures in the group, crying out, "Jumbo, Jumbo," and laughing immoderately.

One of the young men, who was evidently the dandy of the tribe, was strutting about in full dress, evidently very proud of his personal appearance. His full dress consisted in a coat of fresh olive-coloured mud paint on one side, and bright red paint on the other. Half his face was red, the other half olive, and the red paint on his body terminated in a festooned border along the middle of the chest and abdomen; the arms and legs were similarly adorned, the festooned border running down the outer side of the legs like the gold stripe in military trousers. This festooned margin is well shown on the chest of the young girl in Plate xxxii. The wife of the chief of Rutland Island was photographed at Ross Island about a week subsequent to our visit to the "home," but the photograph does not accompany this paper. She is the largest and fattest Andamanese female living in the vicinity of Port Blair; but even in her, no appearance of the fatty deposits in the buttocks, so characteristic of the Hottentot women, can be seen. I mention this, as some have stated that the Andamanese females resemble Hottentots in this respect.

We brought a large shark with us as one of our presents for them. It was interesting to observe how they removed the entrails, separating the gall-bladder with much care; they then broiled large pieces on a wood fire.

* One of these figures is unavoidably omitted in the Heliotype.

† "Proc. Asiatic Soc. Bengal," June, 1870, p. 159.

‡ With the figures in this and other plates, contrast the ancient Egyptian types of countenance represented in the plates accompanying Prof. Owen's paper, at pp. 224 and 228 of this Journal.

The Andamanese, at least the inhabitants of the Southern Island, erect no kind of house whatever. They are fond of a sandy beach, with high cliffs, which shelter them from the wind. When walking along the beach in the vicinity of Port Mouat, I have often come across one of their temporary habitations, which consists of a hole scooped out in the sand, beneath an overhanging rock, large enough to contain a single person. They rarely occupy the same sleeping places two nights in succession.

The inhabitants of the Little Andaman erect enormous beehive-like huts, with the roofs coming close to the ground. They have, probably, learned to construct them from observing the huts of the Nicobarese in the not far distant island of Car-Nicobar during some of their forays, or have been taught to construct them by their Nicobarese prisoners.

The construction of their peculiar arrows and fish spears with moveable heads exhibits much ingenuity, and the use of no small reasoning power in adapting means to an end. The arrow-head (made of iron obtained from ships wrecked on the coast) consists of a triangular piece of flattened iron, fastened to the end of a small stick about four inches in length. At the base of the head, from one to three iron barbs are also fastened to the stick. The end of this short stick fits into a socket provided for it in the extremity of the shaft of the arrow. The connection between the head and shaft is also maintained by a flattened thong (made from wood fibres) about eight inches in length, which is attached by one end to the distal extremity of the shaft, and by the other to the stick supporting the head.

When a pig is struck by this arrow, the head is retained in the flesh of the animal by the barbs; but the end of the short stick supporting the head is soon knocked out of its socket, and the shaft, still connected with it by the thong, is carried along almost at right angles, and quickly becoming entangled in some roots or other obstacles, detains the animal till the hunters come up. Without such an instrument it would be impossible to overtake a wounded pig in the dense forest which covers all parts of the islands.

The fish spears are provided similarly with moveable heads, but with a much longer thong, which allows the shaft to float, and so indicate the course of the wounded fish.

I shall not enter upon any further account of the manners and customs of the Andamanese, as these have been well described in Mr. Francis Day's paper, 'Observations on the Andamanese,' published in the June number of the "Proceedings of the Asiatic Society of Bengal," 1870. Dr. Mouat's

interesting book is well known, and Colonel Tickell* and Mr. de Roëpstorff† have published short vocabularies of the language. A paper on 'Andamanese Kjökken-möddings,' by the late Dr. F. Stoliczka, and 'Notes on a Trip to the Andamans,' by Mr. V. Ball, will also be found in the "Journal and Proceedings of the Asiatic Society of Bengal."

It would be most desirable that some one would endeavour to collect, as far as possible, a complete vocabulary of Andamanese words. The results of an examination of their language would probably afford a much surer clue to their origin than any hitherto adduced.

EXPLANATION OF PLATES XXXI., XXXII., AND XXXIII.

Plate XXXI.—Chief of a tribe of Andamanese (Southern Island) and his wife, showing contrast of size.

Plate XXXII.—Group of Andamanese young women, southern tribe (Southern Island).

Plate XXXIII.—Group of Andamanese of the Southern Island.

All the plates are from photographs taken by the author, May, 1872.

Mr. Hyde Clarke contributed the following note:

NOTE on the LANGUAGES of the ANDAMANS. By HYDE CLARKE.

It is much to be regretted that the vocabularies of the Andamans are very scanty, as are those of the languages admitting of comparison. There is, however, sufficient material to admit of some observations being made.

The various vocabularies come under two classes, that of Colebrooke and that of Tickell, and each is distinct and has distinct relations, presenting a remarkable phenomenon. The Colebrooke Mincopie is allied apparently to—

Gonga of North-East Africa;
Shoshoni, Utah, Comanch of North America;
Bayano and Darien of Central America; and
Mayoruña, Kiriri, and Sabuya of Brazil.

The Tickell Mincopie is allied to—

Natchez, Creek, and Choctaw of N. America; and
Alikulip and Tekeenika of Tierra del Fuego.

It also exhibits strong affinities with some languages of Central India, as Naikude, Keikude, Gadaba, and Yerukala.

* "Journ. Asiat. Soc. Beng.," 1864. † "Proc. Asiat. Soc. Beng.," 1870.

As the allied races are generally short in stature and low in culture, I have proposed for them the name of Pygmean.

In the Colebrooke Mincopie class, *Tabie* is *moon* in the Andamans, and *sun* in North and South America and in Africa. *Nunu* is *tongue* in South America, and *mouth* in Africa. The prefix *Na* or *Nau* is found in this class.

In the Tickell Mincopie—

Eye is *dal*, *dol*, Andaman—*toll*, Creek.

Stone is *tylee*, *tulle*, Chocktaw.

Tongue is *kytela*, *telowah*, Creek.

In the prehistoric languages *stone* sometimes conformed to *head*, but here it appears to conform to *eye*. As in many cases, *eye*, the organ, and *I*, the personal pronoun, conform.

DISCUSSION.

MR. W. L. DISTANT said that, in Mr. Dobson's very interesting paper one could not but notice the great difference between the inhabitants of the Andaman and those of the Nicobar Islands. Car-Nicobar, which the speaker visited a few years ago, is but some eighty miles to the south of the Little Andaman, but has a very different flora and fauna. The ethnic differences are alone considerable. The Andamanese are of a negro or negrito stock, with woolly hair, whilst the Car-Nicobarians are evidently of a more Malayan type, with long, lank, black hair. Their habits are also greatly dissimilar, and the social position of the inhabitants of Car-Nicobar is far above that of their Andaman neighbours. The coconut palm, so abundant in the Nicobars, has been reported as being almost wanting in the Andamans. Among the few mammals indigenous to the two groups of islands, there are forms peculiar to each locality, and Mr. Bowdler Sharpe, of the British Museum, informs me that the same thing is observed in comparing the birds of the two areas. This division between the two faunæ and floræ is analogous to what Mr. Wallace pointed out in the Malayan Archipelago, and the line of demarcation seems to be the same, an interval of deep sea, the "Ten Degree Channel," showing that there can have been no union of the two series of islands for a great lapse of time, even if there ever has been.

MR. PARK HARRISON and the PRESIDENT also made a few observations.

The PRESIDENT announced that the auditors of the accounts for 1874 had been appointed, viz.:—Mr. J. E. Price, on behalf of the Council, and Mr. Archibald Hamilton, for the members. The meeting then adjourned.

ANNUAL GENERAL MEETING.

JANUARY 26TH, 1875.

Professor BUSK, F.R.S., *President, in the Chair.*

The minutes of the last Annual Meeting were read and confirmed.

The President appointed as Scrutineers of the Ballot, Sir Duncan Gibb and Mr. Distant, and declared the Ballot to be then opened.

The Treasurer read his Financial Statement, and submitted the Balance Sheet (see next page).

On the motion of Mr. FRANKS, seconded by Mr. LLOYD, the Financial Report was adopted.

Mr. E. CHARLESWORTH moved the following resolution—
"That the special thanks of the Institute be given to those members who have so generously subscribed the sum of £640 to free the Institute from a debt which has so long embarrassed it financially, and so seriously limited its sphere of action in the promotion of Anthropological Science."

In seconding the motion, Major S. R. I. OWEN said that it ought to be generally known that the Institute possessed a fine library, and a reading-room which was open to the members daily. That room could be made of great use by members desirous of carrying on adjourned discussions on papers of special interest to them read at the fortnightly meetings. Members might conveniently meet there by appointment, to discuss matters of anthropological interest in each of the departments of the science. They should bring, or introduce by letters to the secretary, those of their friends who might wish to be present at preliminary or adjourned discussions. One result would be that valuable papers and new members would be brought to the Institute. The discussions at the regular meetings would often be of more value if the opportunities of preliminary discussions were thus facilitated. Each day in the week might be devoted to some particular section, so that members and visitors coming on those days would be likely to meet others interested in their own special branch of study. That arrangement need not be allowed to interfere with gatherings of a more ephemeral nature. Let it be thoroughly understood that meetings of members and their friends by appointment would not be looked upon as an intrusion, but as a legitimate use of our resources and accommodation, and a fresh stimulus, which it seemed much to need, would be given to the Institute.

Motion carried unanimously.

ANTHROPOLOGICAL INSTITUTE OF GREAT BRITAIN AND IRELAND.

Statement of Income and Expenditure for the Year ending Dec. 31st, 1874.

RECEIPTS.		PAYMENTS.	
To BALANCES, January 1st, 1874:		By Payments on account of:	
In Bank	£ s. d.	PRINTING—Richards	£ s. d.
In hand	113 12 5	LITHOGRAPHY—Bartholomew	12 3 0
	10 0 0	Kell Brothers	52 10 0
„ SUBSCRIPTIONS Received:	123 12 5	Maclure & Co.	4 10 9
Annual	579 12 0	C. F. Kell	37 18 6
Bank	75 10 0	West & Co.	20 8 6
Life Compositions	42 0 0		127 10 9
„ REDEMPTION FUND Receipts.	697 2 0	RENT, OFFICE, &c.:	
„ SALES of Publications:	641 18 6	Rent	227 10 0
Longmans	9 17 7	House Expenses	27 17 3
Office Sales	2 8 0	Tea and Coffee	31 7 6
	12 5 7	Office Sundries	5 18 0
		Bethnal Green	6 5 0
		London Library Subscription	3 0 0
			301 17 9
		SALARIES, COMMISSIONS, &c.:	
		Secretary	100 0 0
		Clerk	70 0 0
		Collector—Commission	34 16 6
		Stamps, Bills	2 13 0
			207 8 6
		POSTAGES, LETTERS and BOOKS:	
		General post	25 11 8
		Journal post	13 6 1
			38 17 9
		ADVERTISEMENTS, &c.:	
		Advertisements	52 8 6
		Stationery	12 16 9
			65 5 3
		BALANCES:	
		Bank	85 15 11
		In hand	7 12 3
			93 8 2
			£1,474 18 6

We have examined the above account, and find it correct.

A. HAMILTON,
JOHN EDWARD PRICE, } Auditors.

The Director read the following Report :

REPORT of COUNCIL of the ANTHROPOLOGICAL INSTITUTE of
GREAT BRITAIN AND IRELAND for 1874.

THE INSTITUTE has held fifteen ordinary meetings and one special meeting during the year, at which the following communications were made :—

1. On the Nagas and Neighbouring Tribes. By S. E. Peal, Esq.
2. On Stone Monuments of the Khasi Hills. By C. B. Clarke, Esq.
3. On a Samoiede Skull from the Museum of the Royal College of Surgeons. By Professor George Busk, F.R.S.
4. An account of the Discovery of Skulls in the Peat of the Isle of Ely. By Professor Marshall, F.R.S.
5. Explorations amongst Ancient Burial Grounds, chiefly on the Sea-coast Valleys of Peru. Part II. By Mr. Consul T. J. Hutchinson.
6. On a Collection of Skulls and Implements brought from Palestine by Mr. Drake. By A. W. Franks, Esq., F.R.S., and C. F. Tyrwhitt Drake, Esq.
7. On the Beothucs, a Tribe of Red Indians, supposed to be extinct, which formerly inhabited Newfoundland; and
8. Notes on Indian Remains found on the Coast of Labrador. By T. G. Biddle Lloyd, C.E.
9. On a peculiar Neolithic Implement from Antrim. By Dr. Sinclair Holden.
10. On the Mixed or Half-Breed Races of North Western Canada. By Dr. A. P. Reid.
11. Notes on the Mixed Races of Australia, and their migrations. By the Rev. George Taplin.
12. Notes on Skulls from a Burial Ground near Tiflis. By Commander Telfer, R.N.
13. The Serpent in connection with Primitive Metallurgy. By Miss A. W. Buckland.
14. Notes on an Ashanti Skull. By Professor George Busk, F.R.S.
15. On the Origin and Development of the Mental Function in Man. By the Rev. Dunbar I. Heath, M.A., Treasurer.
16. On the Mental Differences between the Sexes. By W. L. Distant, Esq.
17. Description of an Ashanti Fetish Curse. By H. H. Howorth, Esq., M.A.
18. Description of a Series of Flint Implements from Canterbury and Reculver. By John Brent, Esq.
19. On the Nonhistoric Stone Monuments of the Mediterranean, a Series of five Papers. By Captain S. P. Oliver, R.A.
20. Strictures on Darwinism. Part III. On Gradual Variation. By H. H. Howorth, Esq.
21. Note on the Evidences of Culture among the Ashantis and Neighbouring Tribes. By Hyde Clarke, Esq.
22. On Statistics obtained from Schools. By Francis Galton, Esq., F.R.S.
23. On the Excess of Female Population in the West Indies. By Francis Galton, Esq., F.R.S.
24. On the Extinction of Families. By Francis Galton, Esq., and the Rev. H. W. Watson.
25. On Rude Stone Monuments of the Nágás. By Major Godwin Austen.
26. Researches in Prehistoric and Protohistoric Comparative Philology, Mythology, and Archæology, in connection with the Origin of Culture in America, and its Propagation by the Sumerian or Akkad Races. By Hyde Clarke, Esq.
27. On the Discovery of Stone Implements in Egypt. By Sir John Lubbock, Bart., M.P.
28. On the Ethnology of Egypt. By Professor Richard Owen, C.B., F.R.S.
29. On the Batchás of Central Asia. By Dr. Eugene Schuyler.

30. On Ethnic Psychology. By Robert Dunn, Esq., F.R.C.S.
31. On the Relative Ages of Cremation and Contracted Burial in Derbyshire in the Neolithic and Bronze Ages. By Rooke Pennington, Esq., LL.B.
32. On Mythological Birds, ethnologically considered. By Miss A. W. Buckland.
33. On the Principles of Classification adopted in the Arrangement of his Anthropological Collection now exhibited in the East London Museum. By Col. A. Lane Fox.
34. Report on the Anthropological Department of the British Association at Belfast. By F. W. Rudler, Esq.
35. Report on the Ethnological Section of the Congress of Orientalists held in London. By Hyde Clarke, Esq.
36. On a Series of about Two Hundred Flint and Chert Arrow-heads, Flakes, &c., from the Rio Negro, Patagonia, with some Remarks on the Stability of Form observable in Stone Implements. By Col. A. Lane Fox.
37. Notes on the Ruins in the Neighbourhood of Palmyra. By C. Cotesworth, Esq. With Remarks upon the Human Remains found therein. By Professor Busk, F.R.S.
38. On some Peruvian Antiquities. By William Bollaert, Esq., F.R.G.S.
39. Some account of a Leaf-wearing Tribe on the Western Coast of India. By M. J. Walhouse, Esq.
40. Notes on some Tumuli and Stone Circles near Castleton, Derbyshire. By Rooke Pennington, Esq., LL.B.
41. On Early Modes of Navigation, tracing the Development of Ship Forms. By Col. A. Lane Fox.

All these papers were read at the rooms of the Institute, with the exception of that by Colonel Lane Fox, "On the Principles of Classification adopted in the Arrangement of his Anthropological Collection now Exhibited in the East London Museum," which was read at a special meeting, held, by permission of the Science and Art Department, at the Bethnal Green Museum. To this meeting ladies were invited, and Colonel Lane Fox's collection of ancient and modern weapons, as well as the objects of art and other attractions of the Museum, was inspected by a large number of members and visitors. The Council have it in contemplation to hold similar special meetings as opportunity may offer.

Eighteen ordinary members have been elected during the year.

Trelawney Saunders, Esq., has been elected a corresponding member.

Twenty ordinary members have withdrawn since the last anniversary.

The Institute has lost, through death, Mr. John Martin, Captain R. J. Morrison, Mr. F. Kingwill Gay, Rev. A. C. Bell, Mr. John Smith, Mr. Henry Mathews, Mr. George Latimer, Dr. Archibald Campbell, Mr. B. Bond Cabbell; and one honorary member, Mr. George Folsom.

Among these names the Council cannot pass without special mention that of one member of their own body, Dr. Archibald Campbell. It is hoped that some account of his life and public services will, on a future occasion, be laid before the members;

of his ever-ready assistance and assiduous attention to his duties on the Council they have the most grateful recollection.

To this list the last few days have added the name of one of the earliest and most valued members of the Institute, Canon Kingsley, who always took a deep interest in our proceedings and in anthropological science.

The following are the names of donors to the Library and Museum during the past year:—

The Imperial Society of Naturalists, Moscow; Department of State, U.S. America; The Bengal Government; Royal Academy of Copenhagen; Imperial Academy of Sciences, Vienna; Royal Society; Editor of *La Revue Scientifique*; Editor of *Archiv für Anthropologie*; Royal Geographical Society; A. W. Franks, Esq.; Anthropological Society of Vienna; Mr. Consul T. J. Hutchinson; Anthropological Society of Paris; M. A. Roujon; Bengal Asiatic Society; Dr. F. Dally; Charles de Scherzer, Esq.; Smithsonian Institution; Berlin Anthropological Society; Royal United Service Institution; E. Burnet Tylor, Esq.; East India Association; Royal Academy of Sciences of Amsterdam; Editor of *Cosmos*; Editor of *Nature*; Anthropological Society of Spain; United States Geological Survey; Society of Antiquaries of London; Geologists Association; Messrs. May and Son; Dr. Edward Jarvis; Oliver Warner, Esq.; The Right Hon. Lord Arthur Russell; Social Science Association; The Rev. James Graves; Logan D. H. Russell, Esq.; The Canadian Institute; Prof. M. Perty; Enrique Meiggs, Esq.; Dr. A. Weisbach; Major Godwin Austen; Anton. Bachmaier, Esq.; The Registrar-General of New Zealand; James Burns, Esq.; Dr. N. B. Wolfe; The Manx Society; M. Gerard de Raille; Royal Institution of Cornwall; American Philosophical Society; Dr. Robert Peel; Royal Asiatic Society of Great Britain and Ireland; Francis Galton, Esq.; W. S. Jevon, Esq.; Charles Bray, Esq.; Col. A. Lane Fox; British Association; Joseph Boulton, Esq.; Philosophical Society of Glasgow; Dr. John Shortt; Prof. Antonio Garbiglietti; Boston Society of Natural History; F. V. Hayden, Esq.; Royal Academy of Sciences of Belgium; The Rev. T. Felton Falkner; Geological Society of Glasgow; Dr. J. Simms; M. Moggridge, Esq.; New Zealand Institute; Dr. Paul Topinard; Royal Society of Victoria; The Secretary of State for the Colonies; Devonshire Association; Executors of the late Henry Christy, Esq.; M. Ernest Chantre; W. Pengelly, Esq.; Madame Clémence Royer; Charles Darwin, Esq.; Major S. R. I. Owen; Dr. J. M. Toner; Board of Public Education, Pennsylvania; Asiatic Society of Japan; H. W. Bellew, Esq., C.S.I.; The Rev. John Campbell.

The most important event of the past year to the Institute is the successful raising of a fund to relieve it of the load of debt with which it has been burdened since its formation. This has been accomplished by the following munificent donations:—

ANTHROPOLOGICAL INSTITUTE.—REDEMPTION FUND.

SUBSCRIPTIONS.

	£	s.	d.
Professor George Busk, F.R.S., <i>President</i>	...	50	0 0
Robert B. Holt, Esq., F.R.S.L.	...	2	2 0
Frederic Ouvry, Esq., F.S.A.	...	5	5 0
B. H. Hodgson, Esq.	...	5	0 0
George Hawkins, Esq.	...	5	0 0
W. Morrison, Esq.	...	5	0 0
J. H. Challis, Esq.	...	10	0 0

	£	s.	d.
W. Spottiswoode, Esq., F.R.S.	5	0	0
J. W. Barnes, Esq.	1	0	0
E. B. Evans, Esq.	5	0	0
H. Muirhead, Esq.	2	2	0
Richard Worsley, Esq.	3	3	0
John S. Phené, Esq., F.S.A.	2	2	0
Rt. Hon. Lord Arthur Russell, M.P.	5	0	0
John E. Lee, Esq.	5	0	0
J. E. Killick, Esq.	2	2	0
Andrew Lang, Esq.	1	1	0
R. D. Darbshire, Esq.	5	0	0
Rev. Tullie Cornthwaite	1	1	0
Edward Harris, Esq.	5	5	0
George Bertram, Esq.	2	2	0
Francis Galton, Esq., F.R.S.	10	10	0
A. W. Franks, Esq., M.A., F.R.S., Dir. S.A.	50	0	0
S. E. Bouverie-Pusey, Esq.	15	0	0
Robert Dunn, Esq., F.R.C.S.	10	0	0
Sir George Balfour, K.C.B.	2	2	0
W. Robinson, Esq.	2	2	0
W. Chamberlin, Esq.	3	3	0
W. R. Greg, Esq.	2	0	0
W. Jennings, Esq.	2	2	0
T. B. Peacock, Esq., M.D.	1	1	0
His Grace the Duke of Devonshire, K.G.	25	0	0
William Long, Esq.	2	2	0
J. S. Bartrum, Esq.	1	1	0
Sir William Armstrong	3	3	0
F. G. H. Price, Esq., F.G.S.	5	5	0
F. W. Rudler, Esq., F.G.S.	5	0	0
David Forbes, Esq., F.R.S.	50	0	0
John Evans, Esq., F.R.S.	50	0	0
James Heywood, Esq., F.R.S.	20	0	0
A. Campbell, Esq., M.D.	5	0	0
C. Richardson, Esq.	1	1	0
E. H. King, Esq.	2	2	0
General J. Drummond	2	0	0
Philip Southby, Esq.	1	1	0
Col. Lane Fox, V.P.S.A.	30	0	0
Sir Walter Elliot	2	0	0
J. Milligan, Esq.	5	0	0
S. W. North, Esq.	1	1	0
J. Jeremiah, jun., Esq.	0	10	0
F. Hovenden, Esq.	3	3	0
Edward Backhouse, Esq.	5	0	0
E. B. Tylor, Esq., F.R.S.	10	0	0
A. Hamilton, Esq.	10	0	0
John Beddoe, Esq., M.D., F.R.S.	5	0	0
Professor Huxley, LL.D., F.R.S.	5	0	0
Sir William Erle	2	2	0
P. C. Hardwick, Esq., F.S.A., R.A.	10	0	0
Consul T. J. Hutchinson, F.R.G.S.	2	2	0
Right Hon. the Earl of Dunraven	10	0	0
Prof. G. Rolleston, F.R.S.	5	5	0
C. Cornish Browne, Esq.	5	0	0
B. Nicholson, Esq.	1	1	0
A. Sanders, Esq.	2	0	0
M. J. Walhouse, Esq.	1	1	0
Rev. John Dingle, M.A.	0	2	6
J. Park Harrison, Esq., M.A.	5	0	0

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J. Prestwich, Esq., F.R.S.	2	2	0
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Rev. D. I. Heath, M.A., <i>Treasurer</i>	10	0	0
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Thomas Richards, Esq.	50	0	0
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E. W. Brabrook, Esq., F.S.A., <i>Director</i>	5	0	0
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Sir Duncan Gibb, Bart., M.D.	2	2	0
Hyde Clarke, Esq.	5	5	0
Rev. Wm. Greenwell	3	3	0
Major-Gen. Sir Arthur Phayre	2	2	0
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Prof. David Duncan	2	2	0
H. H. Howorth, Esq.	5	0	0
Gujputter Rao, Esq.	5	5	0
H. G. Bohn, Esq.	5	5	0
George Harris, Esq., LL.D.	5	5	0
Sir John Lubbock, Bart., F.R.S.*	50	0	0

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Freed from this burden of debt, the Institute will now be able to take measures for the more prompt publication of the many valuable papers laid before the members, and may even contemplate the issue of standard works in addition. For this purpose, however, it is necessary that considerable accessions to the number of subscribing members should be obtained, and the Council recommend earnestly to the members at large the necessity of inducing students of anthropology to join their ranks.

The President of the Institute, Professor George Busk, has, with great liberality, placed at the disposal of the Council a number of copies of an illustrated work by himself, entitled "*Crania Typica*."

The Council have observed with pleasure that the committee appointed by the British Association for preparing anthropological instructions for travellers and other observers have completed their labours, and have published a volume of "*Notes and Queries on Anthropology*," which cannot fail to prove of great value. The Council gladly acceded to a suggestion from the committee that the Institute should be the medium of distributing copies of this important work among persons likely to furnish useful observations on the subjects with which it deals.

On the motion of Mr. WORSLEY, seconded by Mr. CHARLES-WORTH, the Report was adopted.

* Paid subsequently to Audit.

The PRESIDENT then delivered the following Address :—

THE PRESIDENT'S ADDRESS.

GENTLEMEN,—In accordance with annual custom, I rise to offer some brief observations on the principal additions, so far as I have been able to collect them, which have been made to anthropological and ethnological science since our last anniversary.

What I have to say will, however, be very discursive and superficial; for in the limits to which, on such an occasion as the present, I must necessarily confine myself, it is impossible to embrace more than a small portion of what has been effected in such an extensive branch of inquiry, or to do more than cast a very hasty glance at those matters which have seemed most worthy of notice amongst the greater multitude which must be omitted altogether.

As on the last occasion, I shall on the present divide what I have to say under the heads of—

I. Ethnography, including the languages, manners, customs, and psychical and moral characteristics of different races or populations.

II. Prehistoric or Priscan Archæology—the materials for studying the relations and conditions of the human race in Time.

III. Anthropology, properly so termed, or the Natural History of man regarded in a zoological sense, including his psychical characteristics.

IV. General Works or Essays relating to Ethnological subjects.

I. Under the first of these heads, the number of communications made or published during 1874, in our own assembly or elsewhere on the Continent, does not appear to have been large; but amongst those which have fallen under my notice are some of considerable interest and importance.

Amongst the papers under this head communicated to the Institute, I would first notice Mr. T. G. B. Lloyd's "Account of the Beothucs," a tribe of Indians, now stated to be extinct, which formerly inhabited Newfoundland. Mr. Lloyd's paper

is of particular interest, as conveying, besides the results of his own observations, the substance of a "remarkably interesting narrative of an expedition undertaken in the year 1768 by a Captain John Cartwright," and entitled "Remarks on the Situation of the Red Indians of Newfoundland, with some Account of their Manner of Living, &c., taken on the spot." This narrative, as consulted by Mr. Lloyd, was in manuscript, and appears never to have been printed.

A paper by Dr. Reid, on the "Mixed or Half-Breed Races of North-Western Canada," is a valuable contribution, though brief and fragmentary, from an actual observer, towards our knowledge of the gradual changes, physical and psychical, which ensue upon the mixture of blood between the European and a native savage race—a subject to which very great importance attaches in the attempt to trace the source of the peculiarities of different races of mankind. Mr. Taplin's remarks on the "Mixed Races of Australia" should also be mentioned in connection with this subject; but as his observations are chiefly founded on philosophical grounds, and limited to the native races alone, their interest arises from a different source.

One of the most important of the communications laid before the Institute in the past year, in ethnography, is Professor Owen's paper on the "Ethnology of Egypt." The author's object in this memoir is, as he says, to assist in the determination of the "local origin and physical characters of the race which initiated administrative government, ethics, religion, arts, and sciences in Egypt, and the period of such initiation, which," as he very truly observes, "is an aim of more than ordinary interest in anthropology." It may also, perhaps, be added, that the problem thus stated is one of extreme difficulty and obscurity, and has hitherto defied, in great measure, the attempts which have been made towards its solution.

The method adopted by Professor Owen to determine, so far as may be possible, the physical characteristics of the various populations that have from priscan times occupied the Nile Valley—viz. by regarding the types represented in the statues and other figures of the ancient kings and princes, and of the individuals represented on the walls of tombs and temples, and on the covers of sarcophagi, is one which has been before em-

ployed, and is undoubtedly calculated to lead to some conception of the general physical characteristics of the classes thus represented. But it is, perhaps, open to consideration whether, since, for the most part, these individuals must have belonged to the higher and dominant classes of the community, their effigies can be confidently regarded as affording satisfactory evidence as to the character of the great bulk of the population, which, so far as can be judged from pictures of processions, or of occasions on which large crowds were assembled, appears, from the earliest times of which any record remains, to have been as much mixed as at the present day.

One point upon which the author appears to lay considerable stress, relates to a suggestion made some years since by Professor Huxley, in a "Sketch of the Geographical Distribution of the Chief Modifications of Mankind," that the aborigines of the Nile Valley might, like those of the Deccan at the present day, have belonged to a distinct great division of mankind, of which the existing Australians now constitute the extreme type. But in the paper just referred to, I do not understand Professor Huxley to say or to imply that any of the Egyptian races of which we have any means of judging from statues or pictures ever resembled the existing Australian, except in the character of the hair, dark chocolate colour, and dolichocephalic skull, &c. And it should be recollected that the races of which we have any actual knowledge must have been removed from the primordial inhabitants, to whom I presume Professor Huxley's remark was intended to apply, by incalculable ages of time and great vicissitudes of events, and have thus become subjected to great admixture of foreign blood. Granting for a moment that the Australioid type really represents one of the earliest branches or stocks of the human race, the others being the Negroid, Mongoloid, and the so-termed Caucasian or Xanthochroid, or as it might, perhaps, be conveniently termed, the Japetoid—I see no reason to regard Professor Huxley's notion respecting the primitive inhabitants of the Nile Valley, so far as to their belonging to that type rather than to any of the others, as at all improbable, or as altogether disproved by the evidence and arguments adduced by Professor Owen. The primitive Egyptians were clearly not Negroid or Mongoloid, nor were they

Japetoid, although admixture with the first and last of these types may be perceived amongst them. There is, however, another way of viewing the subject; for, admitting it to be highly probable that the four above-mentioned divisions roughly represent very early divisions of the human race of which we have any knowledge at all, it should at the same time be remarked that there is a fifth type, which may, I think, fairly be regarded as of equal distinctness with them—viz. the Melanochroic, or Dark Whites, of Professor Huxley, but which he himself regards, though with some doubt, not as a distinct type, but as one arising from intermixture between the Xanthochroic and the Australioid. It is open, therefore, to consideration whether the more highly developed forms amongst the ancient Egyptians might not have belonged to this Melanochroic branch, and have descended from an original but ruder stock of the same kind.

In a paper by Professor Lauth, of Munich, read before the Anthropological Society of that city in 1870, "On the Human Races (represented) on Egyptian Monuments," it is stated that a picture at Thebes proves that at the time of Sethosis I., the father of Rameses II., or Sesostris, in the fifteenth century before Christ, a canal existed between the Nile and the Red Sea; inasmuch as it represents that Pharaoh bringing numerous Asiatic prisoners across the canal, attended by his nobles and officers. Amongst these figures it is said that four distinct races may be discerned, viz. Egyptian (Redhu), Asiatics (Aamu), Negroes (Nehasiu), and Libyans (Thamehu), each race being characterised by well marked peculiarities in colour, countenance, hair, clothing, arms and ornaments, as well as by tattooing, which is visible in one-fourth of the figures. "A cursory glance," Professor Lauth observes, "through the many thousand years of Egyptian history, shows that these four races, representing, as it were, four regions of the world, had been in contact for more than 5,000 years without losing their special characteristics."

The Libyan (Berber?) race was brought into subjection by Menes, and was again subdued by Nechetophys, the head of the third dynasty. And at the end of that dynasty Snefru is found on the peninsula of Sinai, as a conqueror over the

Asiatics, whilst on the Pyramids blocks of Syenite were and are to be seen, proving that Syene and Nubia had already been subjected to the Egyptian yoke. But anthropological evidence exists of a still earlier commixture of the black and red races. The great Androsphynx, near Gizeh, is older than Cheops; but in it may be perceived the prominent lips of the negro, which are also evident in the portrait of an Egyptian king in the Munich collection. In the sixth dynasty the Ethiopians appear in fact to have been dominant in Egypt, and the last member of that dynasty, Queen Nicotris, is described by Manetho as blonde, or fair; and the Fellahs, at the present day, it is said, tell of a ghost, in the form of a white woman, which haunts the environs of the third pyramid.

The Hykskos, in the fifteenth dynasty, drove the Egyptian king back towards Ethiopia, and, consequently, after they had been in their turn expelled, Amoses I. is found to be accompanied with a negro spouse, Nofretari, who appears to have left traces of her blood in the subsequent monarchs down to Amenophis III. (Memnon), who reigned 1600 years before the Christian era. That monarch married a Semitic queen, and their descendants consequently, and especially Rameses II., or Sesostris, exhibit the Hebrew nose, which was even transferred, in the course of the long reign of Sesostris, to the divine images. His son Menephthah, the Pharaoh of the Exodus, fought successfully against the Libyans and their allies—Etruscan, Greek, Sardinian, Sicilian, &c.—although he was unable to prevent the exodus of the Hebrews.

In a subsequent paper Professor Lauth points out the wonderful resemblance in the existing population to the monumental and sepulchral sculptures and paintings. From these indications Professor Lauth deduces the following characteristics of the ancient Coptic race, and which it bears to the present day:

1. A red complexion in the men, and lemon yellow in the women; finely-formed extremities, and slim and slender trunk; narrow and moderately high forehead; skull dolichocephalic; face oval; hair straight or wavy; eyes deep-set; eyebrows thin and slightly curved; opening of eyelids almond-shaped and slightly oblique; eyes and hair dark-brown or black; nose symmetrical, and almost continuous with the retrocedent fore-

head, wide inferiorly, and somewhat hooked, but not truncated; the upper lip rather long, the angles of the mouth abrupt; no molar prominence; neck slender; thorax an inverted cone—the rather long arms consequently appear to stand out from the trunk; hands small; fingers slender; legs slender; feet narrow, the second toe parallel with the first, and occasionally of the same length. In the monumental figures the ears are represented as being placed unusually high, but they are not so placed actually in the mummies. The incisor teeth are conical, and much worn on the crown, a condition, according to Pruner Bey, still to be observed in the existing population.

Together with this older and more delicate type, a younger and more robust form may be observed, which dates from the invasion of the Hyksos, and the consequent flight of the Pharaohs towards Ethiopia. Professor Lauth refers to the negro admixture thus caused, the darker complexion and more robust form, as well as the different-shaped skull, and its proportion to the face, characteristic of so many private mummies belonging to this period. The features generally, nevertheless, retained the Caucasian type. The bulk of the rural population—the Fellahin, which, perhaps, represents most really the most ancient Egyptian type—represents it at present perhaps more in general corporeal habit than in features, which is easily explainable by the conditions attaching to their long subjection and ill-treatment. The higher ancient characters appear to be more distinctly retained in the less mixed Coptic Christians than in the general bulk of the people, which, nevertheless, presents, according to Professor Lauth, a very distinctive type, readily traceable in the ancient figures, and explicable by the mixture with a Semitic race on the one hand, with a fair-haired and blue-eyed race coming from the west at a very remote period, and with the Ethiopians on the south.

In the "*Zeitschrift für Ethnologie*," a notice is given of what appears to be an interesting and important work on the ethnology of Australia, published at Adelaide, and entitled "*The Dièyerie Tribe of Australian Aborigines*," by S. Gaston (edited by G. Isaacs, 1871), which contains, to judge from the notice, a very full and complete account of the manners and customs, together with a description of the dialect and a voca-

bulary of an aboriginal tribe of natives now rapidly becoming extinct.

II.—PRISCAN ARCHÆOLOGY.

Amongst the various contributions to this department of inquiry presented to us during the past year, I would briefly notice—

I. The second part of a paper by Mr. Consul Hutchinson, "On Explorations amongst Ancient Burial Grounds, chiefly in the Sea-coast Valleys of Peru."

The priscan history of America, and more especially, perhaps, of Mexico, Peru, and Chili, and the adjacent countries of South America, has always been a subject of the greatest interest to ethnologists; and since the publication of Mr. David Forbes' paper on the "Aymara Indians of Bolivia and Peru," read before the Ethnological Society in 1870, the subject may be said to have peculiarly attracted the attention of our members.

Mr. Hutchinson's communications, therefore, coming as they do from one so long personally acquainted with the country, and imbued with great zeal and talent for such explorations, cannot fail to be extremely interesting and valuable, if only as confirmatory, or the reverse, of the observations and conclusions of previous inquirers. As an instance of this, I may notice the circumstance of the occurrence of grinding-stones, or querns, in sepulchres almost at the level of Lima, or at a height of under 3,000 feet above the sea—an occurrence which appears to have been regarded by Mr. Forbes as characteristic of the sepulchres of the Aymara Indians, which are found at an elevation of at least 10,000 feet. Mr. Forbes ingeniously suggests that, owing to this great elevation, the Aymara Indians were unable to cook their pulse and Indian corn in its entire state, and that consequently they had recourse to the crushing of it. But this theory would seem to be disproved by Mr. Hutchinson's discovery of the same kind of querns at the comparatively low elevation of about 2,000 feet, and under conditions which, as he remarks, render it extremely improbable that the implements could have been conveyed from one locality to the other simply for the purpose of depositing them in the sepulchres. But that the races were cognate is shown, with tolerable certainty, by

the circumstance that both Mr. Forbes and Mr. Hutchinson state that the position of the body, and the mode in which it was sewn up in cotton cloth, is that which the infant occupies in the womb. This circumstance, however, might perhaps be as well accounted for by the reason that the posture in question is one in which a human body, admitting of flexion, can be packed into the smallest compass, as by regarding it as in any way designed to represent a return to the universal mother. With respect, however, to this latter notion, it is curious to remark that Cicero states that the oldest form of interment was that described by Xenophon as the mode in which Cyrus was interred, whose corpse, it is related, was deposited in the earth in the same posture as that in which the *fœtus* lies in its mother's womb.

A remarkable fact pointed out by Mr. Hutchinson, who states that from latitude 6° to 18° S., a coast distance exceeding 1,200 miles, he met with precisely the same types, both in the works of art and form of skull, adding the curious remark, well worthy of attention, that much of the pottery found in these Peruvian "*huacás*" bears an exact resemblance to that excavated by Dr. Schliemann from the supposed ruins of Troy.

A short paper by the late Mr. Tyrwhitt Drake, "On a Collection of Skulls and Stone Implements from Palestine," is, in fact, a notice of a very miscellaneous assemblage of objects apparently of widely different ages, and adds but little, if anything, to our previous knowledge of such things in the Holy Land.

Other communications on, or exhibitions of, stone and other implements of prehistoric antiquity brought before the Institute in the past session are—

1. An exhibition of stone implements, mostly of quartzite, and collected by himself in Labrador, in the sites of deserted Indian dwellings, was made by Mr. Lloyd.

2. Mr. Brent exhibited a small collection of worked flints, of the palæolithic period, from the gravel beds of Canterbury, Herne Bay, &c. In noticing these specimens, Mr. Brent attempted to show reasons for considering that the implements from Canterbury were of older date and ruder workmanship than those found on the coast; and, in Mr. Frank's opinion,

some of the specimens exhibited might probably be referred to the neolithic period, so that it would seem likely that remains of widely different epochs may be expected to occur in deposits formed by the degradation of sea cliffs, in which objects of different ages may have originally lain at widely different levels.

3. Notes by Sir John Lubbock on the "Discovery of Stone Implements in Egypt," in which he expresses the opinion, in agreement with that of MM. Hamy and Arcelin, that the stone implements, of which numerous specimens were exhibited, really belong to the stone age, and are ante-Pharaonic.

4. In Mr. Pennington's "Remarks upon Cremation and Contracted Burials, as exemplified in Interments of the Neolithic or Bronze Periods in Derbyshire," one of the most interesting conclusions to which the author has been led is, that "in the Derbyshire district everything leads to the conclusion that although contracted burial *may* have been customary a little earlier than the mode of burning bodies, yet that both methods were adopted by the same races, and that the neolithic and bronze peoples alike used both."

I would also draw attention here to an excellent paper by C. Grewingk, in the "Archiv f. Anthropol.," on the 'Archæology of the Eastern Baltic Provinces and Russia.' Briefly stated, the author's observations lead to the conclusion that, as regards the eastern countries bordering on the Baltic, and the adjacent parts of Russia, Livonia, &c., there was no period precisely corresponding with the older stone period of Worsaae, or at any rate that its existence cannot be proved, either from material evidences of early culture, or by geological data. The absence, or extreme rarity, of the remains of the larger mammals, such as the mammoth, rhinoceros, cave bear, hyæna, reindeer, &c., in Southern Scandinavia, Finland, and Livonia, &c., and especially in the small caverns in the Devonian sandstone of Livonia and Courland, appears to indicate that during the drift period this region could not have been fitted for the existence of man.

As regards the period at which such a change of conditions took place as might have rendered this region habitable, M. Grewingk takes, as affording some means of judging, the thickness of the calcareous layers or tufaceous deposits, which in some places are found to attain a thickness of eight feet, as at

Lobenstein. From an estimation of the rate of deposit of these layers, the period since they began to be formed may, he thinks, be put at about 5,000 years.

In all the above countries, and even far beyond them, he remarks upon the complete absence of dolmens, cromlechs, and the like structures, the easternmost situation of any example of the kind being probably the Grabstätte, at Seefeld, in the province of Dantzic. Another well-marked character of the later stone period, viz. Pfahlbauten, is also entirely absent.

Although polished stone implements, more especially of flint, are very rarely met with in the Eastern Baltic region, stone and iron implements occur mixed together, and commingled with Roman coins of the first, second, and fourth centuries, and some even so late as the ninth to the eleventh, instances of which latter have also been met with in Finland. The author concludes, therefore, from these and other considerations, that the same Slavish population has been continuous from the stone to the iron and recent periods. In Livonia he thinks the stone period was coincident with the bronze age of the more westerly countries, but that there was, during the bronze period, little communication between the populations of the East and West Baltic, so that it has left scarcely any traces, in consequence of which the transition from the stone to the iron age is, as it were, apparently sudden and abrupt. This transition M. Grewingk considers to have taken place about the first century A.D., whilst, according to the Danish archæologists, the bronze age in North Germany, Denmark, Norway, as far north as Drontheim, &c., extended from about 800 to 100 or 200 before Christ.

In the same part of the "Archiv" is a paper by Dr. Hartog Heys v. Zouteveen, on the question 'Whether America was known to the Phœnicians and Carthaginians.' The proofs adduced in support of the affirmative are—

1. The ruined cities in Central America, which exhibit pre-Aztec characters, and are obviously of vast antiquity. And upon these ruins, sculptures interpreted to represent elephants' heads are observed, as are also indications of two races of man of distinct types.

2. The Phœnicians and Carthaginians were undoubtedly

acquainted with a land of some kind beyond the Pillars of Hercules, which it is not impossible may have been America. One of its characteristics was that it had navigable rivers.

3. He adduces the case of the so-termed Onondaga statue, found in the State of New York, which exhibits strong Phœnician characters.

M. Mortillet describes two new caverns in which remains of human workmanship and skeletons have been found—one in the south-west of France, and the other at the north-east extremity of Switzerland. The former, which was explored by M. Louis Lartet and M. Chaplain-Dupare, is situated at Sorde, near Peyrehorade, on the borders of Bearn and the Basque country. The contents of the cavern, which belongs to the polished stone period, were, besides implements—all of stone or bone,—thirty human skeletons.

Amongst the stone implements were some of great beauty and high finish. One, in particular, was a lance-head not more than three centimetres wide at the base, although sixteen centimetres long. The base is triangular, and the point fine and tapering. The sculpture is as if made *à coups de gouge*, and the back presents an acute ridge, so that the section is triangular, whilst it is polished on the opposite side, and the edges finely serrated. Nothing is said about the character of the human remains.

The Swiss cavern is situated at Thaigen, in the Canton of Schaffhausen, and it is of particular interest, as being only the third palæolithic cavern hitherto discovered in Switzerland, and even one of these—that of Salève—is, more properly speaking, in France, that is to say, in Savoy. The most interesting relic procured in the cavern of Thaigen appears to have been an admirable specimen of the figure of a reindeer engraved on a reindeer's horn. The execution of this work of art is so fine, that some Englishmen to whom it was offered refused to purchase it, thinking it must have been a modern forgery. There can be no doubt, however, M. Mortillet observes, that it is genuine. Together with this were found flint implements of the Madeleine type.

In addition to these, M. I. de Baye gives an account of certain grottoes in the valley of Petit-Morin, in Champagne. Of these

grottoes, which are found scattered on the hill-sides, usually in the neighbourhood of streams or springs, about 120 have already been discovered. Independently of their contents, these little excavations appear to be of very considerable interest. Some seem to have been used as habitations, whilst others were of a sepulchral nature only. From the marks remaining on the sides it is apparent that the excavation was made with stone implements.

In some of the grottoes figures partly human, and supposed to represent divinities, were observed. Enormous quantities of stone implements of all kinds were found, and, amongst other things, rounded fragments of the human skull, some perforated, which had apparently been worn. One curious circumstance remarked by M. de Baye was that the skulls were often found to contain a variety of shells and small bones, such as the vertebræ and ribs of infants, which there is reason to believe could not have been introduced, except designedly. Two vertebræ were found, with flint arrow-heads sticking in them, and another had been pierced by a square-ended flint or chisel, whose supposed use as a projectile appears thus to be confirmed. The number of arrow-heads found in these caverns, and especially in the sepulchral ones, appears to have been enormous; and the fact seems to be evident that they had been the immediate cause of death in most instances, and had been interred with the corpse of the victim. Besides stone implements, there were found vases, and instruments of bone, collars, shells, and other ornaments.

Dr. V. Hölder (*Archiv.* vi. 4, p. 89), in the Anthropological Society of Wurtemberg, made some interesting remarks on the so-called race of Canstadt of M. de Quatrefages; a collective name under which that distinguished anthropologist, in the first part of his "*Crania Ethnica*," has included all the human skulls found in the lower quaternary deposits, and amongst these, one which was said to have been disinterred, some time in the last century, near Canstadt, together with numerous bones and teeth of the mammoth and other large mammals. Dr. V. Hölder's remarks apply only to the Canstadt skull, and from what he says, and the authorities he cites, there appears to be no ground for assuming that the skull in question, even if found

at all in the site stated, had anything to do with the mammalian remains supposed by M. de Quatrefages to have been associated with it. And the history of this "find," as Dr. V. Hölder remarks, "shows how, even in science as in history, legends may spring up from a very small germ." For it would seem that although the skull was placed in the same case with the bones and other remains exhumed at Canstadt in 1870, there was no ticket upon, nor any apparent reason why it should have been so placed, seeing that in the original accounts of the excavations at Canstadt by S. Reissel in 1700, and by J. A. Gessner in 1749 and 1753, not only is no mention made of the skull, but it is expressly stated that *no human bones* were found. At any rate, as numerous remains of the Roman and Merovingian periods were met with in the same locality, there is no apparent reason why the skull should, even if found there at all, have belonged to the more ancient rather than to the later period. I may, in addition, remark that this Canstadt skull has been as unfortunate in its fate as it was uncertain in its origin, having, I believe, been demolished, during the siege of Paris, by a Prussian shell.

M. Broca, at a meeting of the Anthropological Society of Paris on 19th June, 1873, offered remarks on "Some Ancient Macrocephalic Skulls from the neighbourhood of Tiflis," which he refers, without doubt, to the bronze period. One of the three skulls exhibited on the occasion was of normal conformation; the other two were more or less artificially deformed, as were most of the other skulls found in the sepulture. The deformation, from the brief description given of it, appears to have been of the usual macrocephalic character, so fully described by V. Baer.

Although it took place in July, 1873, the account of a very interesting discussion in the Anthropological Society of Paris, on the subject of "Tertiary Man," does not appear to have been published till 1874, and I may, therefore, perhaps venture briefly to advert to it.

The question of the existence of worked flints in the tertiary marls of Thenay, which has so long occupied M. l'Abbé Bourgeois, and upon which opinions have been so long and so strongly divided, as was shown at the Brussels meeting of the

Congress of Archæology and Prehistoric Anthropology, was reopened by M. Mortillet, on the occasion of the discovery of further specimens of worked flints by M. l'Abbé Bourgeois, two of which were described by M. Mortillet as of especial interest, as being, perhaps, the best marked specimens yet found in the locality in question. The more curious and beautiful of these two specimens presented the form of a kind of lance-head or, rather, of an oval saw, the edges of which were very regularly chipped. This is in the Museum of St. Germain's. The second specimen was a kind of scraper, of a form which has not unfrequently occurred in the Thenay beds, but it was much larger and more neatly made than those which had been found previously.

M. Mortillet entertained no doubt as to the artificial character of these implements. The question, as it seemed to him, was whether the artificer was human, or an ancestor of the human race; and he appears to have arrived at the conclusion that he or it, was more probably not an actual man, but, as M. Mortillet terms it, "*une autre espèce d'homme*," perhaps even of a distinct genus. The ground upon which he assumes this is, that all the other mammalia of the Calcaire de Beauce belong, almost without exception, to extinct genera, and that there was no reason to conclude that the representative anthropoid form constituted an exception to this rule. It appears to be extremely desirable that the question of the supposed artificiality and age of these miocene flints should be definitively settled one way or the other.

A very interesting communication on the 'Origin of the Knowledge and Use of Bronze in Europe,' by Prof. Unger, is given in the "*Mittheilungen*" of the Göttingen Anthropological Society (a new Anthropological periodical edited by Dr. H. v. Ihering). In this valuable paper the whole subject is almost exhaustively treated. Prof. Unger's conclusions appear to be in accord with those, I believe, most generally entertained, viz. that the use of bronze was introduced into western and northern Europe by the Indo-Germanic or Aryan invaders at the end of the stone period. The paper is one well worthy of attentive perusal, and it will be found to afford copious references to authorities. The various modes of sepulture in the

stone and bronze age are also touched upon at considerable length.

At the special meeting of the Institute, which was held last July, in the Bethnal Green Museum, Colonel Lane Fox read an extremely interesting and instructive paper "On the Principles of Classification adopted in the Arrangement of his Anthropological Collection."

The extent and value of Colonel Lane Fox's collection of "objects illustrating the development of prehistoric and savage culture" is well known to all members of the Institute, and, in fact, to all who take an interest in the subject of primitive culture, and will now become still more widely known to the public at large. I have, therefore, no occasion to dilate upon its importance, and have only to express the very high sense we must all entertain of the instructive discourse in which Colonel Fox explained the principles upon which it has been arranged, and which serve to indicate very clearly the successive steps in which "development of specific ideas, and their transmission from one people to another, and from one locality to another," has taken place.

III.—ANTHROPOLOGY PROPER.

Madame C. Royer, in the course of some observations on the "Origin of the different Human Races," remarks upon the circumstance, that in Europe the great majority of infants are blonde at birth, and that the reverse is never, or but very rarely, observed. She thence deduces the conclusion that this is owing to atavism, and may be considered as a proof that the aboriginal Europeans were universally a fair-haired race. Madame Royer, however, further makes the very ingenious remark, that although the almost universal occurrence of fair hair in European infants is an indication of their descent from fair-haired ancestors, there is another circumstance which would tend to show that this fair hair was not characteristic of primordial man—viz. that even in the fairest-haired infants the true hair is in most cases preceded by a fetal down, with which many children are born, and which is of a deep black colour, very sparse, and, if not woolly like negro hair, is flocky and in tufts, as in the lower Australian races.

These ingenious speculations of Madame Royer appear to me worthy of some attention, as are many others, extravagant as they may at first sight be deemed, contained in her very clever and suggestive memoir. Were her facts as well established as her speculations are attractively stated, Madame Royer's paper would be as instructive as it is now interesting. But this cannot at present be affirmed of them.

In the department of Craniometrical Contrivances, the number of inventions during the past year appears to have been unusually small; at which we can scarcely wonder, seeing the number of such appliances already in existence. The only one that has come under my notice is that described by Herr J. W. Spengel, in the "*Mitth. d. Göttinger Anthropologische Vereine*," and which appears to have been contrived chiefly with a view of carrying out Prof. v. Ihering's views on the subject of craniometry, upon which I commented in my last annual Address. Herr Spengel's apparatus seems to me to be extremely and needlessly complicated, and, consequently, very expensive, its price being about £9. I cannot perceive any use for such expensive and cumbersome contrivances for the simple purpose of measuring the skull, which, with very little ingenuity, can just as well be carried out by very ordinary instruments. But as, on the last occasion of my addressing you, I entered at some length into this subject, I need not go into it again on the present occasion.

According to M. Topinard, expressed at the end of some very sensible remarks upon the "*True Value of Craniometry in the estimation of the Racial Character of Skulls*," the proper method to pursue in craniological inquiry is—

1. To take the presumed characters belonging to the first and second order, one by one, and classify the means into as many series as possible of all races, in an ascending and descending series, and to take these series as homogeneous and numerous as possible.

2. To determine those series which include the greatest number of common characters, and may consequently be regarded as representing a type or distinct race; and to distribute these types or races in natural families, as in other branches of natural history.

3. To take up each of the races thus determined, and by analysis to ascertain the divergences or variations, and consequently its constituent elements.

It is only, as he says, under these conditions that we can proceed to an anatomical classification of races; and it is only in this way that we can take an individual skull—or a small number of skulls—and say in which class it should be placed, or in what proportions it may be constituted from different sources. He, however, omits to state what he regards as characters of the first and second order respectively, and yet this is one of the most important points, and one upon which anything but uniformity of opinion exists.

With respect to the true horizontal plane of the skull, M. Topinard, I am glad to see, if I read him rightly, is of the opinion I have always held, and stated in my Address last year, that the true plane in question is one parallel to the axis of vision, and he also maintains, as on that occasion I pointed out, that this plane is also parallel with M. Broca's condylo-alveolar plane, and, he might have added, with V. Baer's plane of the zygomatic arch. Is not this, at any rate, one of the fundamental points upon which all craniologists might definitively agree?

In a second communication M. Topinard descants upon the characters afforded by the proportions of the *nose*. These, he says, must not be estimated sentimentally, but under strict rules of mensuration; and for the guidance of travellers he states the following as points to be attended to:—

1. The greatest height or length.
2. The greatest breadth.
3. The degree of projection from the base.
4. The form and direction of the nostrils.
5. The general outline of the organ.

In the sixth volume of the "*Archiv f. Anthropol.*," Dr. C. Aeby has a very long and exhaustive, and extremely valuable, paper on '*Microcephaly*,' illustrated with numerous figures. In treating of this subject Dr. Aeby devotes a long chapter to the differences between the male and female skull, as determined from Swiss specimens, which will be found replete with information of the most precise character. I do not perceive that his conclusions differ from those at which most of us had, in a

more vague way arrived, but it is satisfactory to have such a body of reliable evidence in support of our conclusions. I may observe, however, that, from his observations, Dr. Aeby does not agree with Ecker and Welcker and those who assert that the female skull is distinguished, by a comparatively less altitude and breadth, from the male; nor with Weissbach, who considers the female skull to be higher and wider.

Dr. Adolf Bernhard Meyer, in the "*Mittheilungen d. Anthropol. Gesellschaft*" of Vienna, gives an interesting account of the external characteristics of the Papuans of New Guinea—intended, as I am glad to see, to be merely the precursor of a complete anthropological description of the race, which will embrace its psychical peculiarities, craniological characters, habits, and language.

Dr. Meyer commences his observations by some general remarks as to the present distribution on the earth's surface of the Papuan race, in which, it may be said, he includes as varieties the Mincopies or Negritos of the Andaman Islands, the Aetas of the Philippines, the Semangs of Malacca—of whom, however, at present we have scarcely any knowledge—and the Kalangs of Java. The general external characters of the race are a dark complexion, varying from a sort of dusky copper colour to black, and woolly hair. The skull in some—as the Andamanese, for instance—is brachycephalic, but in the greater number of instances, as in those of New Guinea, dolichocephalic. Notwithstanding this difference, Dr. Meyer disagrees with M. de Quatrefages, who regards the Mincopies and Aetas as having no relationship whatever with the Papuans of New Guinea.

The localities in which Dr. Meyer's observations were made are—1, the islands to the north of New Guinea, Mafoor, Mysore, and Jobi; 2, the shores of the whole of Geelvink's Bay, in north-west New Guinea; and, 3, the interior of the country stretching from Geelvink's Bay to M'Clure Gulf, on the west coast of the island; and, lastly, in the Arfak Mountains in the north-west.

It will be seen, therefore, that apart from mere artificial distinctions, his observations relate to a pure and unmixed race of what M. de Quatrefages would term "true Papuans." For he remarks that there can be no question of any Malay intermixture in the north-west parts of New Guinea, although

supposed instances of such mixtures have been mentioned. Nor is there any difference observable between the mountain tribes and those on the coast, in which statement he differs from Mr. Wallace and others. Dr. Meyer then proceeds to describe the physical characters of the Papuans in the following order:—

- | | |
|-------------|-----------------|
| 1. Stature. | 3. Hair. |
| 2. Skin. | 4. Physiognomy. |

1. As regards stature, it has been commonly stated that the Papuans are a large race, especially as compared with the Philippine Negritos, and in the accounts given by travellers they are described as stoutly built, and as equal to Europeans in bulk. But Dr. Meyer's observations do not confirm this. According to his careful measurements the average height of the male Papuan of New Guinea is about 5.5, and of the female rather under 5 feet. Whence it would appear, that although the New Guinea Papuans are taller than those of Luçon (4 feet 9 inches), they are by no means gigantic. Dr. Meyer remarks, from his own experience, that travellers are apt to over-estimate the dimensions of men viewed without clothing, and under the unusual conditions presented by savages. Of this he gives some striking examples, showing the necessity of relying only upon accurate measurements. As regards dress and customs, Dr. Meyer relates that the *pudenda* are always perfectly concealed in both sexes, and that circumcision is unknown—a very important fact, when contrasted with the existence of that rite among at least some of the straight-haired Australian tribes. They are very active and indefatigable mountain climbers; and Dr. Meyer remarked that they had remarkable flexibility and prehensiveness, as it were, in the toes, not from any opposition of the great toe to the other, but from their general adaptability. It would be interesting, consequently, to know whether they are at all platynemic.

2. As regards colour, Dr. Meyer's observations showed that the Papuans, though, on the whole, darker than the Malays, vary extremely in colour, from a comparatively light brown to a deep but always brownish black. And with reference to this I may mention that some forty years ago Dr. George Bennett brought over to this country a woolly-haired girl, of about ten

years of age, from New Guinea, whose hair and colour of skin were more of a dull copper tint than even brown. And he described this colour as being common among some tribes. The skin, contrary to the common report respecting the Papuans, is, in its natural and healthy condition, soft and supple, and not covered with rugosities, as stated by M. de Quatrefages.

3. With respect to the hair—Dr. Meyer's account of which and its peculiarities is very interesting—it does not appear really to grow in tufts like that of the Hottentots, but to assume that peculiar character only when it is allowed to grow long, and become, as it were, matted. In other words, it does not grow in tufts from the bottom, as in the Hottentots. The Papuans, and especially the males, appear to take great pains, and to devote much time, to the art of hairdressing. In infancy the hair is said to be almost always, as in Europeans, of a much lighter hue than that which it afterwards assumes. The hair on the rest of the body presents no remarkable difference from that on ourselves.

4. In their features or physiognomy no distinct or definite type appears to exist. The most various physiognomies may be observed amongst them, which Dr. Meyer finds it as impossible to define as it would be in Europeans. Some individuals present an arched nose and other features recalling the Hebrew type, whilst others are of a Malay cast, and others, again, of a more negroid character; whilst some, except for their colour, might be taken for ordinary Europeans. In proof of this, the paper is illustrated by several well-drawn portraits, not selected for any special purpose, but intended to represent the usual cast of features among the people. This diversity of feature among apparently so unmixed a race is a surprising fact, and one not easily explicable.

I am able to give but this very brief abstract of the contents of Dr. Meyer's interesting paper, which is well worth the careful notice of anthropologists, specially at the present time, when attention appears to be strongly directed to the exploration of the interior of a country which, perhaps, includes more of the unknown than any other part of the world of the same extent. Dr. Meyer's further promised contributions to the anthropology of New Guinea will be awaited with great interest by us all,

He is evidently a clear-seeing and altogether unprejudiced observer.

In a communication "On the Relations of Culture of the Ashantees," Mr. Hyde Clarke points out the curious circumstance of certain linguistic affinities existing between some West African tribes and the inhabitants of the Corean peninsula, and, more markedly, the Indian aborigines known as Kolarian, including Kol, Sonthal, and Mundara. Of these languages, he states that the Mundara proceeds very closely side by side with that of Houssa, so that the conformity of the languages is beyond all doubt; whilst, on the other hand, he finds an affinity between the Basque language and that of the Mandingo and Bambarra negroes.

The Asiatic affinities, if real—of which we can scarcely doubt, on the authority of so competent a linguist as Mr. Hyde Clarke—is a very remarkable phenomenon; but as regards the extension of the Basque so far south, it may, perhaps, be allowable to suggest that it indicates, not any race affinity between the Basques and Negroes, but that the language of the latter may have received some tincture through the Berber races now represented by the Cabyles of Northern Africa, who, from other considerations, were not improbably closely allied with the primitive Iberian race, or races, of which the Basques may, perhaps, be regarded as the modern representatives.

Of Mr. Hyde Clarke's "Researches in Prehistoric and Proto-historic Comparative Philology, Mythology, and Archæology in Connection with the Origin of Culture in America, and its Propagation by the Sumerian or Akkad Families," it is impossible for me here to give even a brief abstract. I would merely, in passing, remark that, in perusing this laborious paper, I perceive that Mr. Hyde Clarke is inclined to class the Eskimos, both in language and blood, with the Negritos of the Andaman Islands, and the Bushmen and other pygmean races of Africa and elsewhere. But this appears to me, from physical considerations alone, which are of far more importance than even the best-established linguistic characters, to be a view altogether untenable.

In a paper on 'Tattooing,' by W. Krause, in the "Proceedings of the Göttingen Anthropological Society," the author,

from the almost universal prevalence of this practice amongst all nations, suggests that such a circumstance might be regarded as indicating a common origin to the human race; but he concludes with showing that it cannot be thus interpreted. He remarks that ornamentation simply is not the object aimed at. The various reasons he assigns for the practice are—

1. Religious motives, as exemplified in the fact that the priests were chiefly so distinguished among the South Sea Islanders (in which, however, I believe he is much mistaken), and that negroes brand themselves on the arm with the figure of the fetish they may select as their guardian deity, &c. In many cases, however, he remarks, the practice may be merely a survival.

2. As distinctive of kings or chiefs, as was the custom among the Thracians, according to Herodotus, and amongst the Picts, according to Julius Cæsar. In these cases the practice is confined to the men.

3. As tribal marks, as among the North American Indians.

4. As a mere personal distinction, conveying in the figure of a weapon or animal, &c., the corresponding name borne by the individual.

5. As a sort of seal affixed to an agreement.

The author seems to think that tattoo marks sometimes disappear spontaneously, but this, in my opinion, is extremely doubtful.

Of other subjects, more or less directly connected with ethnological or anthropological science, upon which the Institute has received communications, I would more particularly notice Mr. Distant's paper on the "Mental Differences between the Sexes," which, however, should more properly have been entitled "On the Cranial Differences," seeing that Mr. Distant's remarks are, for the most part, directed to the differences observable between the male and female skull. His data, however, are derived apparently, not from original observations of his own, but from the labours of Dr. Boyd and Dr. Peacock, Professor Schaffhausen, Ecker, and others, and therefore can hardly be regarded as affording much addition to our knowledge on the subject, which, I may remark, has been so exhaustively treated in a laborious memoir by Dr. Aeby, in the "*Archiv f. Anthro-*

pologie," *apropos* of his comparison between the microcephalic and normal human skull.

As regards the differences in mental conditions between the sexes, or, as Mr. Distant expresses it, the "mental divergence between men and women," Mr. Distant appears to be in accord with nearly all previous writers, that it cannot be assigned solely to the comparatively small size of the brain in the latter, which may, perhaps, be merely a consequence of the smaller dimensions of the body generally, but to a variety of other causes, chiefly moral, emotional, or educational; and he expresses the hope, which appears, amongst us at least, to be in course of justification, that "as the race progresses the cranial capacity of the sexes will become much less distinct," and with it, I presume, he expects that the intellectual capacity will receive an equal development; in fact, speaking generally, I am not sure this consummation has not been already reached.

Under the head of "Miscellaneous Works relating to Anthropology," I would draw attention more particularly to a little book, entitled "Anthropological Notes and Queries," published under the auspices of the British Association, under the able editorship of Colonel Lane Fox.

The object of this work, as stated in the preface, is "to promote accurate anthropological observation on the part of travellers, and to enable those who are not anthropologists themselves to supply the information which is wanted for the scientific study of anthropology at home." The work itself is well calculated to carry out this object, and, as such, I have thought it my duty to bring its existence prominently before you. To use the usual words of a review, "it is a book that should be on the shelves of every anthropologist's library," and, it may be added, in the carpet bag of every traveller, where it will occupy but small space, and to whose owner it will on numerous occasions prove of the greatest possible interest.

Having thus concluded a hasty, but at the same time, I fear, a tedious survey of the labours of anthropologists during the last year, it only now remains for me to thank you, in the first place, for the patience with which you have listened to me, and, at the same time, to thank you still more warmly for the kindness and favour with which you have accepted the imperfect

services I have been able to render to the Institute during the two years I have had the honour of presiding over it. And, on the occasion of my quitting this chair, I may perhaps be allowed to say a few words on the subject of its present condition and future interests.

So far as our pecuniary condition is concerned, I can but congratulate you on a very great improvement, owing to the unexampled liberality with which the call of the Council upon the members for means to clear off our old incumbrances was responded to. This call, as you are aware, produced quite as much as was requisite for the purpose immediately in view; but to enable the Institute to take the position it ought and deserves to occupy, a far more ample revenue than that we at present enjoy is indispensably necessary. One of the more important objects of a society such as this is undoubtedly to afford a centre where the subjects upon which we are concerned may be discussed; nor can it be denied that these discussions are often of extreme value. But besides this, another and even more important, because a more permanent object, must be held in view, which is the publication of such communications as may possess a more than ephemeral value, and by so doing to add to the future progress of science. In our particular case, this publication is attended with considerable expense, without the incurring of which, papers depending greatly upon graphic representations must necessarily be curtailed in a most essential element. Again, from want of funds we are unable to maintain our library in a due supply of many works, more especially of reference, and of an expensive kind, which it would be highly desirable for us to possess, and which, in fact, ought to be found on our shelves.

I might also remark, that were we able to give a sufficient remuneration to a responsible editor, our Journal might be made the vehicle of a great amount of matter from extraneous sources, which, under present circumstances, it is impossible to obtain or arrange with the fullness and completeness which should be aimed at in a publication which ought to be able to keep the members of the Institute *au niveau* with all that is going on in anthropology throughout the world. The only apparent way in which this desirable addition to our funds can be looked for

is by an increase in the number of our members. As it is, though we cannot complain of any material diminution of our number, it certainly does not increase as it ought, nor so much as might have been reasonably expected, when the old and burdensome debt under which the Institute laboured had been cleared off. This arises, perhaps, in part from the circumstance that many of the subjects properly coming within the domains of Ethnology and Anthropology have been taken up by other bodies, such as the Geographical and Statistical Societies, and even, it may be said, by that of the Antiquaries. This cannot be helped, and, so far as science is concerned, is not even to be regretted, but I am convinced it has a tendency to diminish the additions to our numbers.

Another cause, which is intrinsically of less importance and naturally of a more temporary nature, may perhaps be sought in the absurd quarrels which have so long divided English anthropologists, and which are so well calculated to deter peace-loving men from joining what to them must appear a divided body. If all who take an interest in the natural history of the human race were in harmonious combination, there is no reason why the progress of anthropological science, so far as it can be assisted by co-operation, should not take as high a position in this country as it does anywhere else; but to effect this it is requisite that all should pull together with a will. At the present moment our forces, never very large, are divided. I have no intention of entering upon the history of this unhappy division—which is perfectly well known already, perhaps, to all present—but will merely remark, for the benefit of those who are not acquainted with the subject, and more especially of continental anthropologists, that the whole question, from the first splitting of the old Ethnological Society, to the second dissidence two years since, has been and is entirely of a merely personal character. No sufficient reason has at any time existed to justify a course so injurious to the interests of science; and I would more especially insist upon the point, that one of the principal reasons assigned for the separation, viz. that certain subjects or branches of inquiry were forbidden or slighted in this place, is altogether without foundation. All present are well aware of this, and I need only refer to our publications, which prove how comprehensive is

the range of subjects brought before us, and upon which at all times discussion has been as free as air, to show how perfectly groundless the allegation is. Nor can I perceive in the records of any society of anthropologists in France, Germany, Italy, or elsewhere, that any subjects beyond those which have, on different occasions, occupied our attention, have been discussed. Anthropologists throughout the world may be assured that no legitimate subject of scientific interest, within its scope and objects, will be refused admission by the Anthropological Institute, and that all assertions to the contrary are in direct opposition to fact.

Colonel LANE FOX said: Gentlemen,—A duty now devolves on me which I feel sure will be most acceptable to the meeting—viz. to ask you to return your best thanks to our President for the admirable Address which we have just heard, and, I may add, for the services which he has rendered to the Institute during his Presidency. You will, I am sure, think with me that this Address, containing, as it does, a *résumé* of all the principal anthropological events of the year, with his observations upon them, will form in itself a standard contribution to our science. I was one of those who, when we asked Mr. Busk to become our President, felt strongly that during the first infancy of our Institute, it was very desirable the chair should be filled by a gentleman of recognised European scientific standing and ability. The result has, I think, fully confirmed us in these anticipations. It has been mainly owing to Mr. Busk's presence in the chair that the Institute has been enabled to pass the resolution of which you have heard, by which the old debt of the Institute has been completely cleared off—a measure which was absolutely necessary in order to render the progress of the Institute possible, and which will greatly facilitate the labours of those who follow after him. During the two years that Mr. Busk has been President, scarcely a single meeting has taken place without his being present in the chair; and I need not tell those who have attended the meetings regularly how much he has contributed to the interest of our discussions by his speeches, and by the papers which he has read. For my part, I cannot but feel that in accepting the post to which you have done me the honour of nominating me, it will be difficult for me to worthily replace Mr. Busk. Still I feel that my exertions in your behalf will be facilitated by what he has done, and I am confident that I shall receive his support, and that he will continue to take an interest in the Society to which he has contributed so much. There are many other topics on which it may naturally occur to you that I might dilate when speaking of the services which Mr. Busk has rendered to the Institute since it was organised; but I feel sure that nothing which I can say will add in any way to the unanimity and the plea-

sure with which you will respond to the invitation I now make to you, and I will therefore conclude by simply asking you to vote, in the words of the resolution which has been handed to me, that the best thanks of the meeting be given to the President for his Address, and that it be printed in the Journal.

Mr. F. GALTON seconded the motion with very great pleasure, tempered, however, with no little regret that this Address was the last official act of our President, whose administration had been carried on with such rare ability and judgment, and spirit of conciliation.

Carried by acclamation.

On the motion of Mr. F. G. H. Price, seconded by Mr. Watson, the thanks of the members were voted to the auditors of the accounts.

The scrutineers then brought up their report of the ballot, and declared the following gentlemen were elected to serve on the Council for 1875 :—

President.—Colonel A. Lane Fox, F.S.A.

Vice-Presidents.—Prof. George Busk, F.R.S., John Evans, Esq., F.R.S., A. W. Franks, Esq., M.A., F.R.S., Francis Galton, Esq., F.R.S., George Harris, Esq., LL.D., F.S.A., Sir John Lubbock, Bart., F.R.S.

Directors.—E. W. Brabrook, Esq., F.S.A., F. W. Rudler, Esq., F.G.S.

Treasurer.—Rev. Dunbar I. Heath, M.A.

Council.—J. Beddoe, Esq., M.D., F.R.S., W. Blackmore, Esq., H. G. Bohn, Esq., F.R.G.S., Hyde Clarke, Esq., J. Barnard Davis, Esq., M.D., F.R.S., Prof. W. Boyd Dawkins, Esq., M.A., F.R.S., Robert Dunn, Esq., F.R.C.S., David Forbes, Esq., F.R.S., Sir Duncan Gibb, Bart., M.D., Charles Harrison, Esq., F.R.S.L., J. Park Harrison, Esq., M.A., Prof. T. McK. Hughes, M.A., F.G.S., T. J. Hutchinson, Esq., F.R.G.S., Prof. Huxley, F.R.S., F. G. H. Price, Esq., F.R.G.S., J. E. Price, Esq., F.S.A., C. R. Des Ruffières, Esq., F.R.S.L., Lord Arthur Russell, M.P., Rt. Hon. D. H. Stone, E. Burnet Tylor, Esq., F.R.S.

Thanks to the retiring members of Council and to the scrutineers were voted, and the meeting separated.

ANTHROPOLOGICAL MISCELLANEA.

THE NATIVE RACES OF THE PACIFIC STATES OF NORTH AMERICA.
By HUBERT HOWE BANCROFT. London: Longmans, Green,
& Co., 1875.

THIS is a work of unusual interest and importance. The first volume (the only one yet published) has recently been presented to the library of the Institute. It contains 800 pages of letterpress, devoted to a description of the "wild tribes" that inhabit the western half of North America, from Alaska to Darien, including Mexico and the Central American States. Four more volumes, it is announced, will treat of the manners and customs of the civilised nations, and the mythology, languages, and antiquities of the same region.

Mr. Bancroft's aim has been to gather and arrange in a systematic way all that is known of the peoples above alluded to. Much of the matter he has collected was previously either wholly unknown, or inaccessible to ordinary readers. With the aid of a staff of assistants, his mass of materials, derived from some 1,200 books, manuscripts, and pamphlets, has been classified, and the customs and characteristic features of some hundreds of tribes set down in regular geographical order. Copious quotations are given in the notes.

The author avoids speculation, believing that the work of a collector and of a theoriser are distinct. His motto is that facts are the staple of science. This much, however, forces itself on his belief, as a result of his labour, that the native races of North-western America differ amongst themselves only in minor particulars, and that they bear a general resemblance to the inhabitants of other parts of America. The index, which is in preparation, will, as the author says, double the value of the work.

J. P. H.

CAVE-HUNTING; *Researches on the evidence of caves respecting the early inhabitants of Europe.* By W. BOYD DAWKINS, M.A., F.R.S., F.G.S., F.S.A. Macmillan & Co., 1874.

IN this excellent work, Professor Boyd Dawkins has thrown into a well-digested form the crude mass of facts, bearing upon cavern researches, to be found in this Journal and elsewhere. The introductory chapter contains allusions to the legends connected with caves, and an outline of the history of cavern exploration in this country and throughout Europe. In the next chapter Professor

Dawkins describes the various ways by which caves may have been formed, and discusses the rate of the growth of stalagmite. The systematic description of caves commences with those which have been inhabited by man in historic times; and especial prominence is here given to the Romano-Celtic or Brit-Welsh stratum in the Victoria Cave at Settle. Incidentally it may be remarked that the committee appointed to explore the caves at Settle has recently issued a pressing appeal for funds to carry on their work. A brief notice of such caves as were used in the ages of iron and bronze leads Professor Dawkins to the caves of the neolithic age; here the Perthi-Chwareu and Cefn Caves naturally come in for detailed description. After discussing the range of the neolithic dolichocephali and brachycephali, the author passes to a notice of the pleistocene caves, giving a full description of the Wookey-holehyæna-den. The succeeding chapters are devoted to a notice of the inhabitants of the caves of North-western Europe, and the evidence of the fauna as to the Atlantic coast-line; to a description of the fauna of the caves of Southern Europe, and the evidence as to the Mediterranean coast-line in the pleistocene age; and to a discussion of the probable character of the climate of Europe during the pleistocene period.

A copy of this interesting work has recently been presented to the library of the Institute.

AN INDIAN INSTITUTE.—Dr. Forbes Watson has published a paper on the Establishment of an Indian Institute for Lecture, Enquiry, and Teaching, in connection with the India Museum and Library. The author points to the influence which such an institute would be likely to exert on the prosecution of Indian studies in this country, and on the advancement of education among the natives of India. In the proposed arrangement of the museum and library prominence would be given to illustrations bearing on the ethnography of India. Whilst the natural resources of the country would be exhibited, the moral and material condition of the people would also be illustrated, special sections being devoted to ethnology, philology, archaeology, mythology, &c.

MR. HOWORTH on the MONGOLS.—Mr. Henry H. Howorth, who has contributed several papers to this Journal on the ethnology of the Asiatic nomades, is writing a monograph on the Mongols, including their history from the earliest appearance of the name Mongol to the present day, and also a detailed account of their religion, manners, and customs, &c. It will probably be published in the course of the autumn.

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